UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
PROGRAM PLANNING AND INTEGRATION
Silver Spring, Maryland 20910

MAY 6 2014

Dear Reviewer:

In accordance with provisions of the National Environmental Policy Act (NEPA), the NOAA's National Marine Fisheries Service (NMFS) *Final Environmental Impact Statement (FEIS) for Amending the Atlantic Large Whale Take Reduction Plan (Plan)* is available for your review online: http://www.nero.noaa.gov/whaletrp

This FEIS is prepared pursuant to NEPA to assess the environmental impacts associated with amending the current Plan. In response to the continued serious injury and mortality of large whales due to entanglements in commercial trap/pot and gillnet gear, NMFS has determined that modifications to the Plan are warranted. In developing changes to the Plan, NMFS evaluated a number of alternatives. These alternatives seek to reduce the risk of large whale entanglement by measures such as prohibiting the use of vertical lines in certain areas at certain times of the year, reducing the number of vertical lines in certain areas at certain times of the year, mandating certain gear configurations, and requiring more extensive gear marking. These changes are designed to address ongoing entanglement issues, especially those involving vertical line. NMFS believes that addressing the risk associated with vertical line by reducing the number of vertical lines, particularly in areas of higher whale density, will reduce serious injury and mortality of large whales due to incidental entanglement in commercial fishing gear.

NOAA is not required to respond to comments received as a result of issuance of the FEIS. However, comments will be reviewed and considered for their impact on issuance of a record of decision (ROD). Please send comments to the responsible official identified below by June 16, 2014. The ROD will be made available publicly following final agency action.

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Sincerely,

Patricia A. Montanio
NOAA NEPA Coordinator

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FINAL
ENVIRONMENTAL IMPACT STATEMENT
FOR
AMENDING THE
ATLANTIC LARGE WHALE
TAKE REDUCTION PLAN:

VERTICAL LINE RULE
VOLUME I OF II



Photo Courtesy of David Wiley

National Marine Fisheries Service
National Oceanic and Atmospheric Administration
DEPARTMENT OF COMMERCE

Prepared by: Industrial Economics, Incorporated, and
NOAA's National Marine Fisheries Service

Draft EIS: July 2013
Final EIS: May 2014

RESPONSIBLE AGENCY:

Assistant Administrator for Fisheries
National Oceanic and Atmospheric Administration
U.S. Department of Commerce
Washington, DC 20235

PROPOSED ACTION:

Implementation of amendments to the Atlantic Large Whale Take Reduction Plan to reduce the risk of serious injury and mortality to Atlantic large whales due to incidental interactions with commercial fishing gear from Maine to Florida's east coast.

ABSTRACT:

The Atlantic Large Whale Take Reduction Plan (ALWTRP) was developed pursuant to Section 118 of the Marine Mammal Protection Act to reduce the serious injury and mortality of right, humpback, and fin whales due to incidental interactions with commercial fisheries. NMFS is preparing a Final Environmental Impact Statement for the proposed amendments to the ALWTRP regulations (50 CFR 229.32). The proposed gear set modifications are designed to further reduce the risk of serious injury and mortality to Atlantic large whales due to incidental interactions with commercial fishing gear.

TYPE OF STATEMENT:

( ) DRAFT (X) FINAL

FOR FURTHER INFORMATION CONTACT:

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GUIDANCE FOR SUBMITTING COMMENTS:

Comments on the FEIS may be submitted by mail to the above address. Please add the line:

ATTN: Large Whale Rule

Comments on the FEIS must be received within 30 days of the publication of the Notice of Availability.

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INTRODUCTION AND EXECUTIVE SUMMARY CHAPTER 1

The Atlantic Large Whale Take Reduction Plan (ALWTRP) is designed to protect three endangered species – the western North Atlantic stock of right whales, the Gulf of Maine stock of humpback whales, and the western North Atlantic stock of fin whales – from the risk of serious injury and death associated with entanglement in commercial fishing gear. The ALWTRP consists of both regulatory and non-regulatory measures that, in combination, seek to assist the recovery of these large whale species. Since its implementation in 1997, the National Marine Fisheries Services (NMFS) has modified the ALWTRP on several occasions to address the risk of entanglement in gear employed by gillnet and trap/pot fisheries. In light of continued entanglements, NMFS intends to promulgate additional regulatory requirements to further reduce the risks posed by commercial fishing gear.

This Environmental Impact Statement (EIS) evaluates the biological, economic, and social impacts of a range of alternatives for modifying the ALWTRP, including NMFS' preferred alternative. The discussion that follows briefly summarizes its content and key findings. Specifically:

- Section 1.1 provides information on the status of Atlantic large whale species and the nature of the entanglement problem;
- Section 1.2 describes current ALWTRP requirements, as well as the requirements of the regulatory alternatives considered in this analysis;
- Section 1.3 summarizes the conclusions of the biological, economic, and social impact analyses and identifies NMFS' preferred regulatory alternative;
- Section 1.4 describes changes made to the EIS in response to public comment on the Draft EIS issued in July 2013, the proposed rule, and new information obtained during the development of those documents;
- Section 1.5 discusses areas of controversy that may influence interpretation of the report's findings; and
- Section 1.6 describes the organization of the report's remaining chapters.

1.1 STATUS OF LARGE WHALES AND THE NATURE OF ENTANGLEMENTS

Right whales, humpback whales, and fin whales are listed as endangered species under the Endangered Species Act (ESA), and are, therefore, considered strategic stocks under the Marine Mammal Protection Act (MMPA). Section 118(f)(1) of the MMPA requires the preparation and implementation of a Take Reduction Plan (TRP) for any strategic marine mammal stock that interacts with Category I or II fisheries. A Category I fishery is one in which the mortality and serious injury rate of a strategic stock is greater than or equal to 50 percent of the stock's potential biological removal (PBR) level – defined under the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (OSP).[1] A Category II fishery is one in which the mortality and serious injury rate of a strategic stock is greater than one percent but less than 50 percent of the stock's PBR. Because the strategic stocks noted above interact with Category I and II fisheries, under the MMPA, a TRP is required to assist in their recovery. In addition, the measures identified in the ALWTRP are beneficial to the survival of the Canadian east coast stock of minke whales, a species that is not listed as endangered or threatened under the ESA. The status of each of these species is discussed in Chapter 4 and summarized briefly below.

- **Right Whale**: The western North Atlantic right whale (*Eubalaena glacialis*) is one of the rarest of all large cetaceans and among the most endangered species in the world. NMFS estimates a minimum population size of 444. NMFS believes that the stock is well below the OSP, especially given apparent declines in the population; as such, the stock's PBR level has been set to 0.9 (Waring et al., 2013).[2]
- **Humpback Whale**: As noted above, the North Atlantic humpback whale (*Megaptera novaeangliae*) is listed as an endangered species under the ESA. For the Gulf of Maine stock of humpback whales, NMFS estimates a minimum population size of 823 and has established a PBR level of 2.7 whales per year (Waring et al., 2013).
- **Fin Whale**: NMFS has designated one population of fin whale (*Balaenoptera physalus*) as endangered for U.S. waters of the North Atlantic, although researchers debate the possibility of several distinct subpopulations. NMFS estimates a minimum population size of 2,817 and PBR of 5.6 (Waring et al., 2013).
- **Minke Whale**: As previously noted, the minke whale (*Balaenoptera acutorostrata*) is not listed as endangered or threatened under the ESA.

[1] The optimum sustainable population of any stock or species is defined as the number of animals that will result in the maximum productivity of the stock or species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element (16 USC 1362(9)).

[2] The parameters for calculating the PBR level are described in the MMPA (See 16 USC 1362(20)).

The best estimate of the population of Canadian east coast minke whales is 20,741, with a minimum population estimate of 16,199. The PBR for this stock of minke whales is162 (Waring et al., 2013).

Atlantic large whales are at risk of becoming entangled in fishing gear because the whales feed, travel, and breed in many of the same ocean areas utilized for commercial fishing. While fishing gear is in the water, whales may become incidentally entangled in the lines and nets that make up trap/pot and gillnet fishing gear. The effects of entanglement can range from no permanent injury to serious injury and death.

Exhibit 1-1 summarizes all known "serious injury" entanglements of right, humpback, fin, and minke whales from 1997 through 2010[3] (Waring et al. 2013). Humpback whales account for the greatest number of serious injury entanglements (35), followed by right whales (11); minke whales account for five serious injuries, while fine whales account for four. More detail relating to large whale entanglements is provided in Section 2.3: "Rationale for Rulemaking."

Exhibit 1-1 SERIOUS INJURY ENTANGLEMENTS

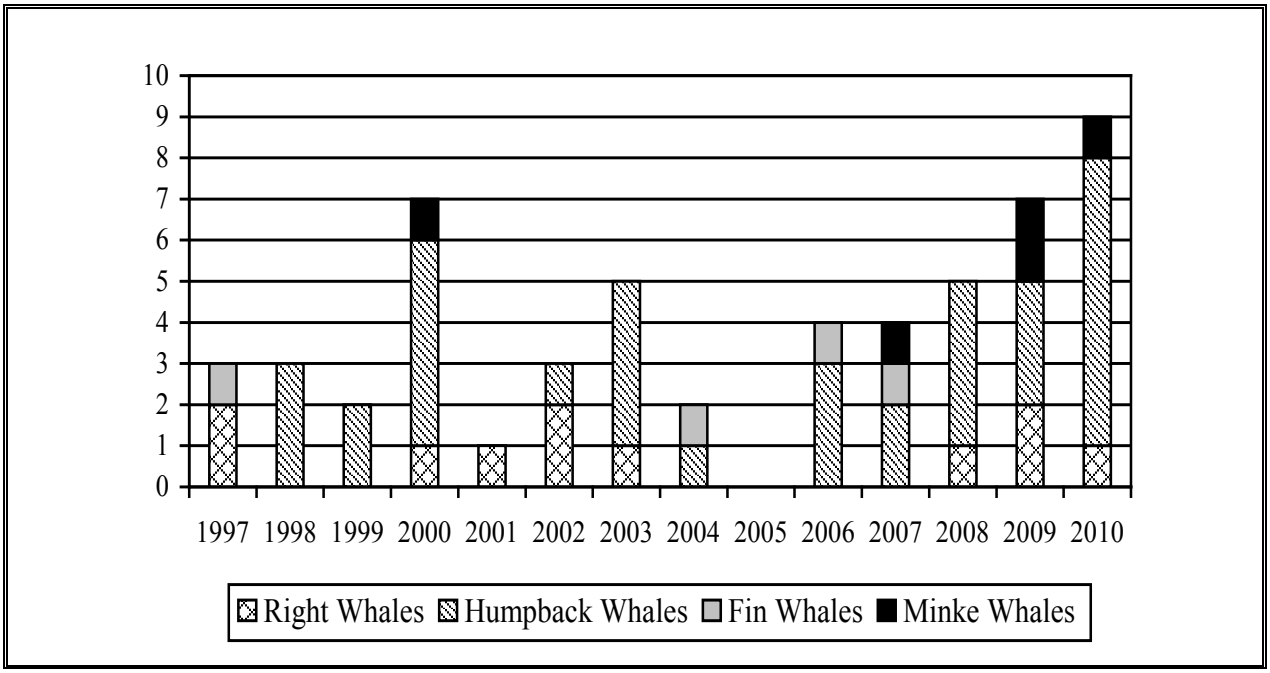
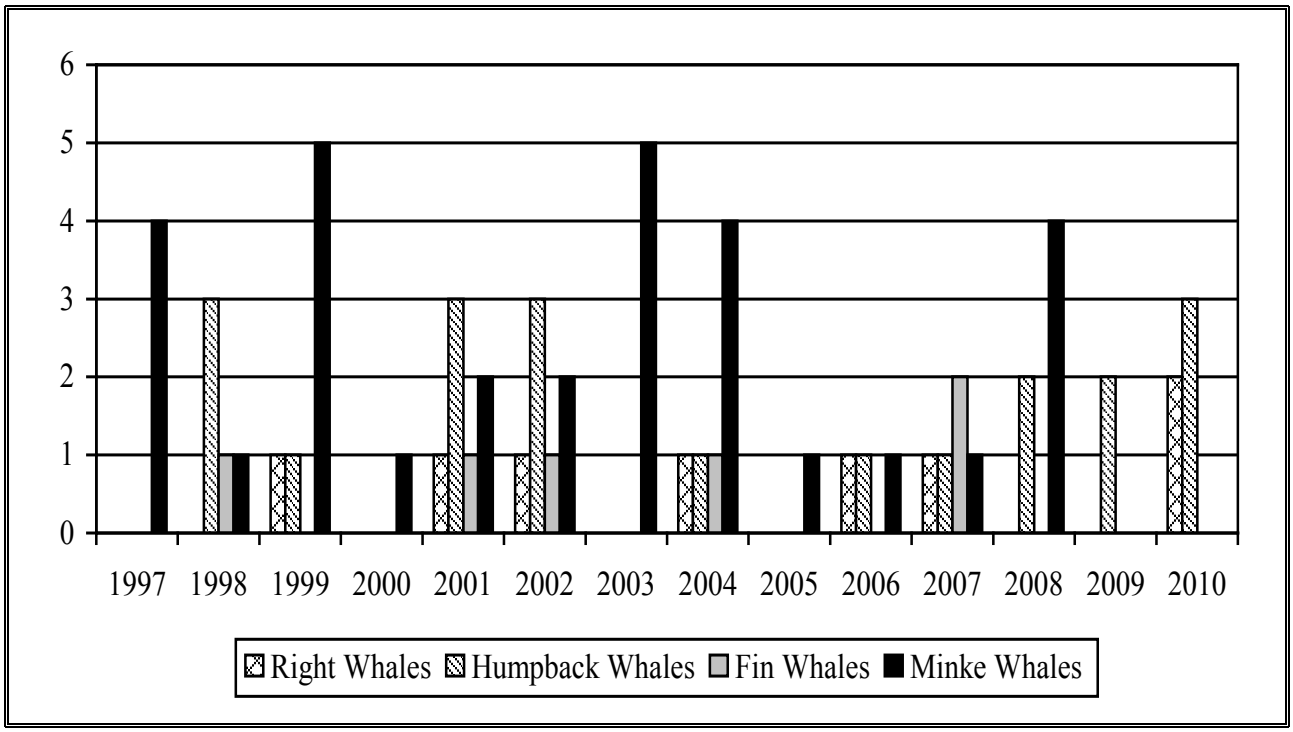


Exhibit 1-2 presents available data on fatal entanglements of Atlantic large whales from 1997 through 2010 (Waring et al 2013). Minke whales account for the most known entanglement mortalities (31), followed by humpback whales (20), then right whales (8) and fin whale account for six.

[3] "Serious injury" means any injury that will likely result in mortality (50 CFR 229.2).

While entanglement is a significant source of risk for Atlantic large whales, other factors influence whale survival. Historically, commercial whaling has presented the greatest threat to whale stocks, and is largely responsible for reducing the populations of certain species to endangered status. Broad adherence to a voluntary international ban on commercial whaling has reduced this threat to the most seriously endangered species. However, other threats remain, including collisions between whales and ships, as well as the adverse effects that water pollution, noise pollution, climate change, and reductions in prey availability may have on whale stocks. These threats are discussed further in Chapter 9: Cumulative Effects Analysis.

Exhibit 1-2 FATAL ENTANGLEMENTS



1.2 ATLANTIC LARGE WHALE TAKE REDUCTION PLAN

1.2.1 Current ALWTRP Requirements

In response to its obligations under the MMPA, NMFS established the Atlantic Large Whale Take Reduction Team (ALWTRT) in 1996 to develop a plan for reducing the incidental take of large whales in commercial fisheries along the Atlantic Coast. The ALWTRT consists of representatives from the fishing industry, state and Federal resource management agencies, the scientific community, and conservation organizations. The intent of the ALWTRT is to provide recommendations to NMFS in developing and amending the ALWTRP.

The ALWTRP seeks to reduce serious injury to or mortality of large whales due to incidental entanglement in U.S. commercial fishing gear. The Plan consists of restrictions on where and how gear can be set; research into whale populations, whale behavior, and fishing gear; outreach

to inform fishermen of the entanglement problem and to seek their help in understanding and solving the problem; enforcement efforts to help increase compliance with ALWTRP measures; and a program to disentangle whales that do get caught in gear. The fisheries currently regulated under the ALWTRP include:

- Northeast/Mid-Atlantic American lobster trap/pot;
- Atlantic blue crab trap/pot;
- Atlantic mixed species trap/pot which includes, but is not limited to: crab (red, Jonah, and rock), hagfish, finfish (black sea bass, scup, tautog, cod, haddock, pollock, redfish (ocean perch), and white hake), conch/whelk, and shrimp;
- Northeast sink gillnet;
- Northeast anchored float gillnet;
- Northeast drift gillnet;
- Mid-Atlantic gillnet;
- Southeastern US Atlantic shark gillnet; and
- Southeast Atlantic gillnet.

Chapter 2 of this EIS reviews the current ALWTRP requirements in greater detail.

1.2.2 Alternatives Considered

NMFS is currently considering a suite of regulatory alternatives that would modify existing ALWTRP requirements to address ongoing entanglement issues. The alternatives under consideration would seek to reduce large whale entanglement through a variety of measures, such as increasing the number of traps per trawl, establishing a maximum breaking strength for vertical line, requiring weaker weak links, and seasonal closures. The alternatives would affect all trap/pot fisheries currently covered under the ALWTRP.

Chapter 3 describes in detail the regulatory alternatives evaluated in this EIS. The primary features of these alternatives are summarized below and outlined for comparison in Exhibit 1-3. For reference, Exhibit 1-4 shows the Northeast Region's lobster management areas:

- **Alternative 1 (No Action)**: Under Alternative 1, NMFS would continue with the status quo, i.e., the baseline set of ALWTRP requirements currently in place.
- **Alternative 2**: This alternative would increase the number of traps per trawl based on area fished and miles fished from shore [(0-3), (3-12), and (12+)] in the Northeast Region (Maine-North Carolina). Maine waters are managed based on zone, and the proposed number of traps per trawl differ based on

Maine zone. In the Southeast Region, measures include weaker weak links, a maximum breaking strength for vertical line, and requiring the use sinking line (free of objects) for the vertical line. The Alternative also includes a more robust gear marking program coast wide.

- **Alternative 3**: Alternative 3 is a combination of NMFS proposed traps per trawl (Alternative 2) and ideas from our State partners. Maine Department of Marine Resources provided a proposal for traps per trawl based on Maine zones and distance from shore that differ from NMFS [(0-3), (3-6), (6-12), and (12+)]. Massachusetts Division of Marine Fisheries proposed a closure in the Cape Cod Bay Critical Habitat area for all trap/pot fisheries from February 1 through April 30th. Rhode Island Department of Environmental Management requested a minimum 15 trap per trawl requirement in LMA 2 (12+) as opposed to NMFS' 20 trap per trawl limit. New Hampshire Department of Fish and Game requested that New Hampshire state waters be exempt from the Plan. NMFS proposal is in effect in all waters and times of year that are not covered by the State proposals. In the Southeast Region, measures include weaker weak links, a maximum breaking strength for vertical line, and requiring the use of sinking line (free of objects) for the vertical line. The Alternative also includes a more robust gear marking program coast wide.

- **Alternative 4**: Alternative 4 is the same as Alternative 2 with the addition of closures in certain areas as proposed by the Conservation/Scientist stakeholder group (see Chapter 3 for charts of areas). Three trap/pot closures are included in this proposal; Jordan Basin (Nov 1 to Jan 31); Jeffreys Ledge (Oct 1 to Jan 31); and Cape Cod Bay to Great South Channel (Jan 1 to April 30). NMFS proposal is in effect in all waters and times of year that are not covered by the closures. In the Southeast Region, measures include weaker weak links, a maximum breaking strength for vertical line, and requiring the use of sinking line (free of objects) for the vertical line. The Alternative also includes a more robust gear marking program coast wide.

- **Alternative 5**: Alternative 5 is a combination of Alternatives 3 and 4. Where proposed trap/pot closures overlap (eg, Cape Cod Bay) the larger closure in time and area is proposed. NMFS proposal is in effect in all waters and times of year that are not covered by the state proposals or closures. In the Southeast Region, measures include weaker weak links, a maximum breaking strength for vertical line, and requiring the use of sinking line (free of objects) for the vertical line. The Alternative also includes a more robust gear marking program coast wide.

- **Alternative 6 (Draft)**: Alternative 6 (Draft) is similar to Alternative 5 but only includes 1 of the three trap/pot closures proposed in Alternative 5. NMFS proposal is in effect in all waters and times of year that are not covered by the closures. For this Alternative NMFS proposal is modified in Massachusetts state waters. In the Southeast Region, measures include weaker weak links, a maximum breaking strength for vertical line, and requiring the use of sinking

line (free of objects) for the vertical line. The Alternative also includes a more robust gear marking program coast wide.

- **Alternative 6 (Preferred):** In response to comments received on the Draft Environmental Impact Statement (DEIS), NMFS formulated a final preferred alternative that builds upon Alternative 6 (Draft). Key differences under Alternative 6 (Preferred) include the following: (1) No gear marking would be required in Maine exempted waters; (2) New Hampshire state waters would be exempt from the traps per trawl requirement only; (3) a ¼ mile buffer was created around three inhabited islands in Maine to allow singles; (4) the Pocket Waters of Maine were defined as state waters and would have a minimum of two traps per trawl required; and (5) Rhode Island state waters would have a minimum of two traps per trawl required.

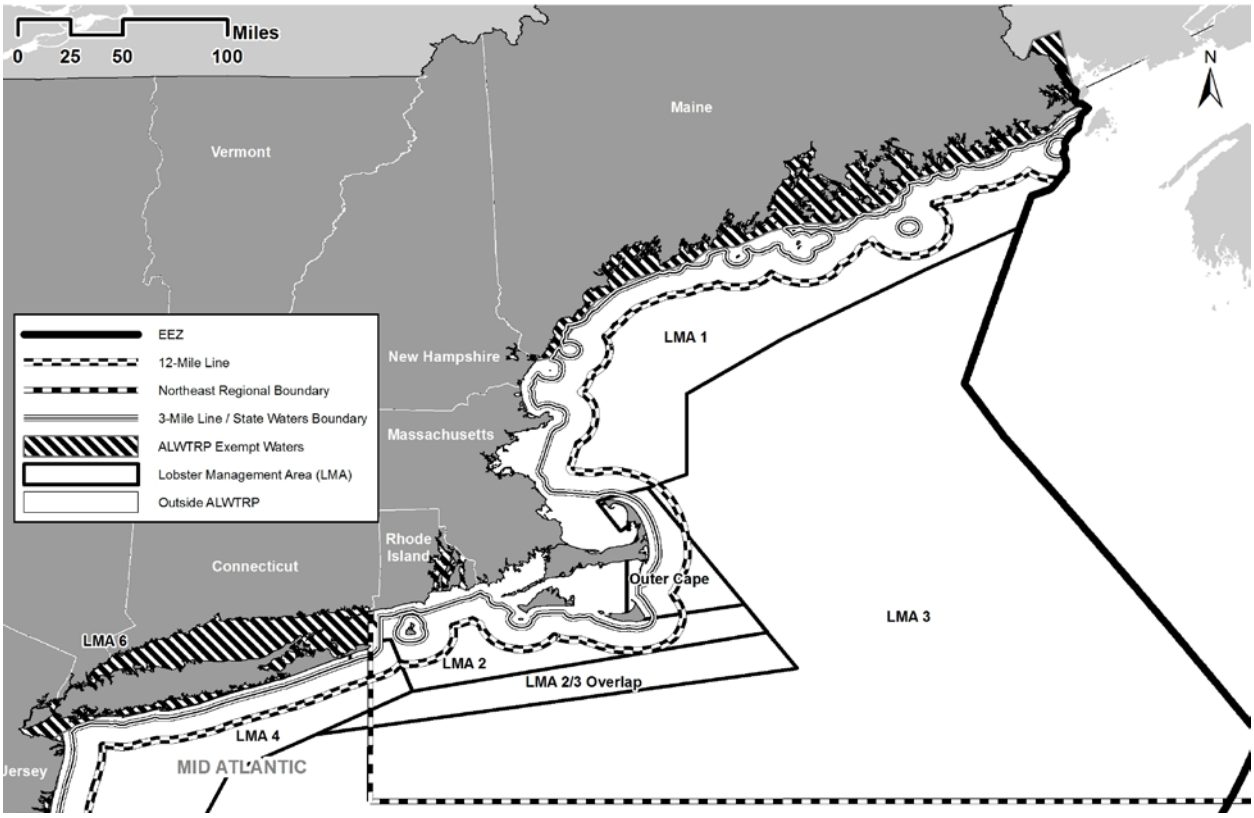
Exhibit 1-3
PROPOSED ALWTRP MANAGEMENT ALTERNATIVES 2-6
(Requirements in addition to current ALWTRP requirements (i.e., No Action alternative))

Location	Component	Alternative 2***	Alternative 3	Alternative 4	Alternative 5	Alternative 6 (Draft)	Alternative 6 (Preferred)
Northeast Region (Proposed Management measures include increasing the number of traps/trawl and/or closures and gear marking)							
Maine State Waters		2 to 4	2	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3, and ¼ mile buffer around islands
Maine (3-12 mile)		5 or 10	-----	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
Maine (12+ mile)		10 or 20	15	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
Maine (3-6 mile)		------	3	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
Maine (6-12 mile)		------	5 or 10	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
NH State Waters		3	Exempt	= Alt. 2	= Alt. 3	= Alt. 3	=Alt. 3
MA State Waters		3	=Alt. 2	= Alt. 2	= Alt. 2	2	2
RI State Waters		3	=Alt 2	= Alt 2	=Alt 2	=Alt 2	2
LMA 1 (0-3 mile)		3	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA 1 (3-12 mile)		10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA 1 (12+ mile)		20	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA1/OC overlap (0-3 mile)		2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
OC (0-3 mile)		2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
OC (3-12 mile)		10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
OC (12+ mile)		20	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA 2 (0-3 mile)		3	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA 2 (3-12 mile)		10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA 2 (12+ mile)		20	15	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
LMA 2/3 Overlap (12+mile)		20	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
LMA 3 (3-12 mile)		10	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
LMA 3 (12+ mile)		20	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
Trap/pot Closure Areas							
Jordan Basin (LMA 3, 12+mile)		20	20	Closed Nov. 1- Jan. 31	Closed Nov. 1- Jan. 31	20	20
Jeffreys Ledge (LMA1, 3-12+ mile)		10 or 20	10 or 20	Closed Oct. 1- Jan 31	Closed Oct. 1- Jan 31	10 or 20	10 or 20
Cape Cod Bay (LMA 1, 3-12+ mile)		10 or 20	Closed Feb 1- April 30	Closed Jan 1- April 30 (includes portion of OC and abuts GSC)	Closed Jan 1- April 30 (includes portion of OC and abuts GSC)	Closed Jan 1- April 30 (includes portion of OC)	Closed Jan 1- April 30 (includes portion of OC)

Location	Component	Alternative 2***	Alternative 3	Alternative 4	Alternative 5	Alternative 6 (Draft)	Alternative 6 (Preferred)
Mid-Atlantic Region							
New York, New Jersey, Delaware, Maryland, Virginia, North Carolina		Gear Mark/Monitor	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	=Alt 2
Southeast Region (Measures would apply in the area defined as Southeast US Restricted Area North)							
Florida State waters	Weak links	≤ 200 lbs	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Vertical Line	Breaking strength ≤ 1,500 lbs, must be one continuous piece of sinking line	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Other	Must use one buoy line with one trap, gear mark	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
Georgia State waters	Weak Links	≤ 600 lbs	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Vertical Line	Breaking strength ≤ 2,200 lbs, must be one continuous piece of sinking line	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Other	Must use one buoy line with one trap, gear mark	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
South Carolina State waters	Weak links	≤ 600 lbs	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Vertical Line	Breaking strength ≤ 2,200 lbs, must be one continuous piece of sinking line	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Other	Must use one buoy line with one trap, gear mark	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
Federal waters	Weak links	Status Quo	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Vertical Line	Must be one continuous piece of sinking line	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Other	Must use one buoy line with one trap, gear mark, bring gear back to shore at conclusion of trip	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2

*** trawls with 5 or less traps will have 1 endline. 'Or' is based on Maine Zone. OC = Outer Cape, GSC= Great South Channel

Exhibit 1-4
NORTHEAST REGION LOBSTER MANAGEMENT AREAS



1.3 MAJOR CONCLUSIONS AND PREFERRED ALTERNATIVES

1.3.1 Biological Impacts of Alternatives

Gear modification requirements and closures are a key component of the ALWTRP modifications under consideration. Section 5.1 of this EIS discusses the potential impact of these requirements on whale survival. The major requirements affecting whale survival include:

- **Buoy Line Requirements:** The requirement to increase the number of traps per trawl in the Northeast is designed to reduce the amount of vertical lines in the water and thus, benefit large whales by reducing the frequency or severity of entanglement in buoy lines and associated gear. The Southeast requirements for a sinking line buoy line (free of objects) and lower breaking strengths of buoy line will also reduce the severity of entanglement in buoy lines.

- **Weak Link Requirements:** The potential regulatory changes analyzed include provisions such as requiring that lobster and other trap/pot gear employ a weak link on all floatation and/or weighted devices attached to the buoy line. The specified strength and placement of weak links is designed so that, if a large whale does become entangled, it could exert enough force to break the weak link. Thus, the risk of serious injury or mortality would be reduced.

- **Set Restrictions and Gear Stowing Requirements:** The potential regulatory changes under analysis include several restrictions on how trap/pot gear can be set. The requirement that vessels in the Southeast Federal waters remove their gear from the water and stow it on board before returning to port is designed to ensure that any interactions between gear and whales would be observed and reported in a timely fashion, permitting a more rapid response.

In addition to gear modification requirements, the potential changes to the ALWTRP include a range of restrictions on the location and timing of fishing activity. These include the seasonal closures of known right whale habitat areas. The general objective of all these potential changes is to limit the frequency and severity of interactions between whales and regulated trap/pot gear while avoiding implementation of costly requirements that yield limited risk reduction.

The biological impacts analysis incorporates quantitative and qualitative indicators that facilitate comparison of the impact of the regulatory alternatives on potential entanglement risks (see Exhibit 1-5 for the upper bound of these impacts).

Exhibit 1-5

COMPARISON OF IMPACTS BY ALTERNATIVE (assuming 100% suspend fishing): QUANTITATIVE RISK REDUCTION INDICATOR

	Regulatory Alternatives					
Regulatory Provision	**2**	**3**	**4**	**5**	**6 (Draft)**	**6 (Preferred)**
Gear Requirements						
Buoy Line						
Increase number of traps per trawl						
Number of FTE Affected Vessels	1,817	1,392	1,834	1,400	1,364	1,357
Breaking Strength						
Number of FTE Affected Vessels	21	21	21	21	21	21
Single buoy line provision						
Number of FTE Affected Vessels	21	21	21	21	21	21
Weak Link						
Number of buoy lines affected	3,048	3,048	3,048	3,048	3,048	3,048
Set Restrictions						
Number of FTE Affected Vessels	12	12	12	12	12	12
Gear Marking						
Number of new marks	1.1 million	1.1 million	1.1 million	1.1 million	1.1 million	393,295
Seasonal Closure						
Closure in Jordan Basin (Nov. 1 – Jan. 31)						
Number of FTE Affected Vessels	0	0	5	5	0	0
# Reduction in VL	0	0	15,262	15,262	0	0
Closure in Jeffreys Ledge (Oct.1 - Jan. 31)						
Number of Affected Vessels	0	0	69	69	0	0
# Reduction in VL	0	0	15,262	15,262	0	0
Closure in Cape Cod Bay (Feb. 1 - Apr. 30)						
Number of Affected Vessels	0	16	0	0	0	0
# Reduction in VL	0	841	0	0	0	0
Closure in Massachusetts Restricted Area #1 (Jan. 1 - Apr. 30)						
Number of	0	0	110	110	0	0

FTE Affected Vessels						
# Reduction in VL	0	0	15,262	15,262	0	0
Closure in Massachusetts Restricted Area #2 (Jan. 1 - Apr. 30)						
Number of FTE Affected Vessels	0	0	0	0	109	109
# Reduction in VL	0	0	0	0	6,329	6,329
Total % Reduction in VL	35.3	29.7	36.5	30.9	29.1	29
Total % Reduction in CO	35.8	37.4	40.5	41.7	38	37.9

Notes:

- The #Reduction of VL for Alternatives 4 and 5 is a combination of all the proposed closures.
- FTE Active Vessels stands for Full Term Equivalent vessel. Using Federal and state data sources, the model estimates the number of commercial fishing vessels that participate in each fishery. Depending on the location and fishery, the model employs a variety of methods to estimate the number of active vessels this differs from the number of permitted vessels.

Key:
0 = no change
VL= Vertical Line
CO= co-occurrence

The co-occurrence value estimated in the model is an index figure, integrated across the spatial grid, indicating the degree to which whales and the vertical line employed in gillnet or trap/pot fisheries coincide in the waters subject to the Plan. Biological impacts are characterized with respect to the percentage reduction in the overall co-occurrence indicator each alternative would achieve.

Exhibit 1-5 displays the estimated change in co-occurrence under each action alternative relative to the no-action alternative (Alternative 1). Alternative 2, which includes trawling requirements but no closures, is estimated to yield a reduction in co-occurrence of approximately 36 percent. Alternatives 3 through 6 (Draft and Preferred) add incrementally to this reduction through closure of high-risk areas at various times of year. The estimated impact of these closures is greater when affected vessels are assumed to suspend fishing rather than relocate to alternative fishing grounds. The greatest reduction in co-occurrence is achieved under Alternative 5,which includes modified trawling requirements as well as three closures (Jeffreys Ledge, Massachusetts Restricted Area #1, and Jordan Basin). Under this alternative, the estimated upper-bound reduction in co-occurrence is 42 percent.

In addition to impacts on large whale species, changes to ALWTRP regulations may affect other aspects of the marine environment, including other protected species, essential fish habitat (EFH), and directed catch and bycatch in affected fisheries. Analysis of these issues, addressed in Section 5.2 of this EIS, suggests no significant differences among Alternatives 2 through 6 (Draft and Preferred) with respect to impacts on essential fish habitat, directed catch, or bycatch; in each case, the impacts are generally expected to be minor. The alternatives differ,

however, with respect to the ancillary benefits they would afford other protected species. These differences stem from differences in the extent to which the alternatives would mandate requirements that could prove beneficial to potentially affected species of whales, porpoises, dolphins, seals, and sea turtles.

1.3.2 Economic Impacts of Alternatives

The economic impact analysis, discussed in Chapter 6 of this EIS, examines estimated compliance costs for model vessels and calculates the overall cost to the commercial fishing industry of complying with the regulatory changes under consideration. The analysis measures the cost of complying with these new requirements relative to the status quo – i.e., a baseline scenario that assumes no change in existing ALWTRP requirements. Thus, all estimates of compliance costs are incremental to those already incurred in complying with the ALWTRP.

1.3.2.1 Estimated Vessel Compliance Costs

The economic impact analysis first calculates the compliance costs for model vessels, defined by species sought and fishing location (see Section 6.2). Estimated vessel compliance costs include both the expenses associated with reconfiguring gear as required under the new ALWTRP regulations and the costs (or savings, for some vessel groups) associated with replacing gear more (or less) frequently due to gear loss.

The cost associated with converting trap/pot to comply with the ALWTRP modifications includes the labor and material costs associated with weak links, gear marking, and buoy line (see Section 6.2.2.2). Annualized costs are derived from estimates of the initial cost fishermen would incur to convert their gear before the regulations come into effect, as well as ongoing costs thereafter. A seven percent discount rate is used to annualize costs.

In addition, the costs associated with seasonal closures were analyzed (see Section 6.3). This analysis assumed a range of impacts resulting in a upper and lower bound depending on the industry's response to the closures.

1.3.2.2 Total Industry Compliance Costs

Once compliance costs for the model vessels are calculated, the analysis estimates the number of vessels represented by each model vessel (i.e., the number of vessels within a particular category). The analysis uses data on Federal and state-permitted vessels to estimate the number of vessels in each category, identifying vessels that have actively fished with the applicable gear types and might therefore be affected by changes to the ALWTRP. After identifying and removing vessels that operate within exempt waters, each of the remaining vessels is assigned to the appropriate model vessel category.

The product of the annualized compliance cost estimate for each model vessel and the number of affected vessels in each category provides an estimate of annualized compliance costs for the category as a whole. The sum of compliance costs across all vessel categories provides

an estimate of annualized compliance costs for the commercial fishing industry. Section 6.5 describes the estimated costs of compliance with potential changes to the ALWTRP.

1.3.2.3 Economic Impact Results

Exhibit 1-6 summarizes the estimated industry compliance costs for each of the regulatory alternatives, breaking the results down by fishing sector (lobster, other trap/pot, and gillnet). Depending on the alternative and scenario (upper versus lower bound) in question, the analysis indicates that the lobster fishery would incur roughly 80 percent to 90 percent of estimated costs. OTP vessels would also incur a significant share of costs, primarily because of the proposed minimum trawl-length requirements.[4] The impact of the regulatory alternatives on other fisheries is likely to be minor, reflecting the costs associated with meeting new gear marking requirements.

[4] Due to insufficient data on vessel activity, the analysis of compliance costs under Alternatives 2 through 6 excludes potential impacts on trap/pot vessels operating in the Northern Inshore shrimp fishery. The Vessel Trip Report data incorporated in the Vertical Line Model identify only two such vessels; this suggests that much of the activity of trap/pot vessels in this fishery is accounted for by vessels that are not subject to Federal reporting requirements, presumably because they do not hold a Federal permit and fish only in state waters. Much of this activity is likely to occur in portions of Maine state waters that are currently exempt from ALWTRP requirements; under Alternatives 2 through 6, vessels operating in these waters would only be subject to ALWTRP gear marking provisions. Given these considerations, it is unlikely that exclusion of the Northern Inshore shrimp fishery from the analysis will lead it to substantially understate the costs of complying with Alternatives 2 through 6.

Exhibit 1-6

DISTRIBUTION OF ESTIMATED ANNUAL COMPLIANCE COSTS BY FISHERY
(2011 dollars)

Regulatory Alternative	Fishery						Total	
	Lobster Trap/Pot		Other Trap/Pot		Blue Crab	Gillnet		
	Lower	Upper	Lower	Upper			Lower	Upper
Alternative 1 (No Action)	$0	$0	$0	$0	$0	$0	$0	$0
Alternative 2	$1,814,000	$4,546,000	$430,000	$849,000	$7,000	$5,000	$2,255,000	$5,407,000
Alternative 3	$1,645,000	$3,600,000	$414,000	$833,000	$7,000	$5,000	$2,070,000	$4,445,000
Alternative 4	$3,121,000	$6,550,000	$430,000	$849,000	$7,000	$5,000	$3,562,000	$7,411,000
Alternative 5	$2,954,000	$5,551,000	$414,000	$833,000	$7,000	$5,000	$3,379,000	$6,396,000
Alternative 6 (Draft)	$2,192,000	$4,361,000	$416,000	$836,000	$7,000	$5,000	$2,620,000	$5,208,000
Alternative 6 (Preferred)	$1,482,000	$3,637,000	$416,000	$835,000	$7,000	$5,000	$1,910,000	$4,484,000

Note: Values may not sum to the totals shown due to rounding.

Of the action alternatives, estimated costs are lowest for Alternative 3. This alternative incorporates less stringent trawling requirements than specified under Alternative 2 and includes only the CCB Restricted Area closure, which affects relatively few vessels and poses limited costs. Alternative 4 is likely to pose the greatest costs. It includes three closures, two of which (Jeffreys Ledge and Massachusetts Restricted Area #1) cover large areas. The estimated impact of the closures specified under this alternative ranges from $1.3 million to $2.1 million per year. The cost of complying with Alternative 5 is likely to be somewhat less than that of complying with Alternative 4. The difference is attributable to a difference in trawling requirements, which are slightly less stringent under Alternative 5. In general, compliance with gear configuration requirements imposes the greatest costs, with estimates ranging as high as $4.4 million per year. The costs attributable to the seasonal closure of restricted areas also contribute significantly to the estimate of total compliance costs under Alternatives 4, 5, 6 (Draft and Preferred). In the upper bound scenario, the overall estimate for Alternative 6 (Preferred) is slightly higher than that for Alternative 3, but lower than the estimates for the other action alternatives. Gear marking costs are significantly lower under Alternative 6 (Preferred) because it does not require gear in Maine waters landward of the ALWTRP exemption line to be marked. In the lower bound scenario, this leads the estimate of total compliance costs for Alternative 6 (Preferred) to be lower than the corresponding figures for the other action alternatives.

1.3.3 Social Impacts of Alternatives

The analysis of social impacts, discussed in Chapter 7, considers how compliance with the regulatory alternatives could affect the socioeconomic viability of fishing, fishermen's quality of life and the economic welfare of the general public.

1.3.3.1 Potentially Affected Communities

The social impact analysis first uses county-level data on affected fishing vessels to identify the communities at greatest risk of experiencing adverse social impacts stemming from the ALWTRP modifications under consideration (see Section 7.3). The analysis uses additional county-level socioeconomic data to characterize key features of the at-risk communities, examining economic, demographic, and social features that may influence the impact of the regulations on the region.

Hancock and Knox counties report the greatest value of landings with ALWTRP gear ($108.7 million and $94.6 million, respectively), as well as the greatest number of vessels fishing with such gear (approximately 949 and 953, respectively). The exposure of these counties to adverse impacts is heightened by the fact that landings made with ALWTRP gear account for a high percentage (91 percent in both cases) of overall ex-vessel revenues. Washington County (ME) is also highly exposed, with potentially affected landings of $51.8 million. Each of these counties is highly dependent on fishing, as measured by Hall-Arber et al.'s OARS score. Moreover, the high poverty and unemployment rates in these counties suggest that they have limited capacity to absorb additional economic stress. As a result, they are particularly vulnerable to the impacts of ALWTRP regulations. Exhibit 1-7 lists the at-risk counties. The list is heavily weighted toward the Northeast, particularly several coastal counties in Maine where lobstering is prevalent. Although the dealer and processing sectors are small to medium in size in these areas, they are frequently part of small communities and play an important role in regional economies in the state. Several of the Maine counties are rural and have limited economic diversification and/or higher than average unemployment and poverty rates. Other at-risk communities include urbanized ports (e.g., Gloucester, Portland, and New Bedford) where fishing activities are linked to major processing operations.

1.3.3.2 Comparison of Vessel Compliance Costs to Ex-Vessel Revenues

To further examine the potential for socioeconomic impacts from the revised ALWTRP requirements, this analysis considers the economic burden placed on different classes of vessels (see Section 7.4.1). Placing vessel compliance costs in the context of typical ex-vessel revenues helps determine whether the costs will be significant enough to cause behavioral changes (e.g., vessel retirement) on the part of vessel operators. The analysis defines "heavily affected" vessels as those for which annualized compliance costs exceed 15 percent of mean annual revenues. The analysis further defines "at risk" vessels as those for which annualized compliance costs are between 5 and 15 percent of mean annual revenues.

To identify potentially hard-hit sectors of the commercial fishing industry, the analysis compares estimates of average vessel compliance costs to estimates of average gross revenue per vessel. There is no clearly-defined threshold at which annualized costs represent a large enough percent of annual revenues that a vessel operator would cease fishing, or would otherwise suffer social and economic hardship.

Vessels that would not be affected by the seasonal closure of designated areas (Alternative 2) are likely to face substantially lower cost burdens than those affected by such closures (Alternatives 3-6 (Draft and Preferred)). In light of this difference, the analysis in Chapter 7 separately describes the estimated impact of Alternative 6 (Preferred) on these two groups of vessels.

For all the alternatives, it is difficult to discern precisely how the operators of heavily affected vessels will respond to the regulations. The assumption that all heavily affected vessels will cease fishing is highly conservative, and fishermen identified as heavily affected might find it economically possible to adjust to the modified ALWTRP regulations (e.g., by restricting their effort to exempted waters) rather than leave fishing.

Exhibit 1-7

KEY COMMUNITIES AFFECTED BY ALWTRP MODIFICATIONS

At-Risk County[1]	State	Major Ports[2]
Washington	ME	Beals Island/Jonesport, Cutler, Eastport, Lubec
Hancock	ME	Stonington/Deer Isle, Bucksport
Waldo	ME	Belfast, Searsport, Northport
Knox	ME	Rockland, Vinalhaven, Port Clyde
Lincoln	ME	South Bristol, Boothbay Harbor
Sagadahoc	ME	Georgetown, Phippsburg
Cumberland	ME	Portland, Harpswell
York	ME	Kennebunkport/Cape Porpoise, York
Rockingham	NH	Hampton/Seabrook, Portsmouth, Isle of Shoals
Essex	MA	Gloucester, Rockport, Marblehead
Suffolk	MA	Boston Harbor
Norfolk	MA	Cohasset
Plymouth	MA	Plymouth, Scituate, Hingham
Barnstable	MA	Sandwich, Hyannis, Chatham, Provincetown, Woods Hole
Dukes	MA	Vineyard Haven
Bristol	MA	New Bedford, Fairhaven, Westport
Newport	RI	Jamestown, Newport, Tiverton, Sakonnet Point
Washington	RI	Point Judith/Galilee

Notes:

[1] For this analysis, at-risk counties are defined as those with over 100 active vessels that must comply with ALWTRP requirements and which report annual landings of greater than two million pounds by vessels using gear potentially subject to regulation under the ALWTRP. This list is heavily weighted toward the Northeast, particularly several coastal counties in Maine where lobstering is prevalent.

[2] Major ports based on Hall-Arber et al. (2001) and McCay and Cieri (2000).

1.3.3.3 Other Socioeconomic Impacts

Negative Impacts

Fishermen may realize a variety of other negative social impacts in complying with ALWTRP modifications (see Section 7.5.1):

- To avoid the requirements associated with the new ALWTRP regulations, fishermen may choose to fish increasingly in previously exempted waters. This could cause congestion, gear conflicts, and competition for fishing grounds in exempted waters to increase.

- Furthermore, revised ALWTRP gear modification requirements may result in an increased incidence of gear loss. In addition to the costs incurred to replace lost gear, fishermen may spend more time and resources hauling, grappling for, and repairing gear. This could potentially increase the hours that fishermen spend at sea.

- Likewise, certain modifications to ALWTRP requirements may have safety implications for fishermen. For example, some smaller vessels may have a hard time increasing the number of traps per trawl. Finally, the compliance cost burden may create a competitive disadvantage for smaller lobster vessels, causing industry consolidation.

- Competition for fishing grounds may increase if changes to the ALWTRP include the seasonal closure of certain fishing grounds. Most notably, fishermen who would otherwise fish in the closed area may relocate their effort to new grounds, increasing competition in those areas. Competition for fishing grounds may also increase to the extent that fishermen relocate from their traditional fishing grounds to exempted waters or waters that are otherwise subject to more moderate regulation. Tension, resentment, and conflict may result from attempts made by outsiders to exploit areas where they have not historically participated. Fishermen who are ultimately excluded from alternate grounds, and subsequently must sit out the season, may experience stress and anxiety associated with inactivity and lost income.

Positive Impacts

Changes to the ALWTRP may also have a variety of positive social impacts. To the extent that the new ALWTRP regulations successfully protect and restore whale populations, members of the public who view and photograph whales would benefit from the regulations. Annual revenues from the New England whale watching industry total approximately $30 million, and studies indicate that consumers' enjoyment increases with the number of whales and species sighted. Consequently, whale watch operators could benefit from increased ridership and revenues as whale populations stabilize or increase.

Economic research indicates that society places a value on the knowledge that unique environmental resources exist, even without using the resource directly (often referred to as the "existence value" of a resource). Therefore, the preservation of right, humpback, fin, and minke whales would have an existence value that is not explicitly quantified in this EIS.

In addition, it is possible that in some cases, the management measures under consideration would have a beneficial effect on fishermen. The potential for such impacts was noted in a 2012 report on a collaborative pilot project conducted by the Maine Department of Marine Resources, the Gulf of Maine Lobster Foundation, and the lobster industry (Maine DMR, 2012). This project sought to determine the impact of fishing longer trawls in areas in which lobstermen traditionally have fished singles or pairs. The fishermen participating in this effort noted several potential benefits of switching to trawls. In particular:

- Several fishermen noted they were able to haul traps configured in trawls more quickly than the same number of traps configured as singles, potentially resulting in decreased time spent at sea;

- Several individuals noted that their success in grappling for lost gear was greater with trawls than with singles. Thus, those who switch from singles to trawls may spend less time in their efforts to recover lost gear.[5]

Exhibit 1-8 summarizes the social impact conclusions discussed above.

1.3.4 Preferred Alternative

Integration of the biological, economic, and social impact findings allows for a meaningful comparison of the regulatory alternatives. Integrating these findings typically allows formulation of measures that characterize the benefits derived relative to the costs (or other negative effects) incurred. However, in the case of the ALWTRP modifications, development of a unifying cost-benefit analysis is complicated by two factors:

- First, the costs and benefits are characterized using diverse metrics (e.g., dollars, increased use of low-risk gear, numbers of heavily affected vessels) that cannot be readily reduced to a single measure. In many cases, costs or benefits are described only in qualitative terms or are characterized with imperfect indicators (e.g., comparative measures of risk reduction potential).

- Second, as acknowledged above, several of the regulatory alternatives have very similar implications. Because the impact estimates are subject

[5] These time savings may be offset by an increased incidence of hang downs with longer trawls; however, the anecdotal evidence suggests that trawls did not hang-down with any greater frequency than the usual single/double trap configured gear.

to uncertainty, the minor variations that exist among these alternatives do not allow easy differentiation.

Based on the consideration of the relative costs and benefits of the alternatives, NMFS initially identified Alternative 5 as the preferred alternative in the DEIS. The rationale provided in the DEIS emphasized that this alternative achieved a high reduction in co-occurrence and provided the greatest protection to whales.

Comments on the DEIS have guided NMFS' development of a final preferred alternative: Alternative 6 (Preferred). This alternative integrates changes to Alternative 6 (Draft) that takes into account the comments regarding the safety of those fishing in smaller vessels around islands and close to shore. Alternative 6 (Preferred) also reduces the economic impact of the proposed action while sacrificing few large whale protection benefits. These changes and reasons for the changes are as follows:

- Alternative 6 (Preferred) would require the same number of trap/pot closures as proposed under Alternative 6 (Draft); however, this is less than the number of closures proposed under the original preferred alternative in the DEIS (Alternative 5). NMFS received numerous public comments opposing the three closures stating economic concerns and lack of evidence that the three closures would maximize the conservation benefit to large whales. Alternative 6 (Preferred) will implement one trap/pot closure in an area known to be an important right whale habitat.

- Alternative 6 (Preferred) would require a minimum of two traps per trawl in Rhode Island state waters. This is similar to what was proposed for Massachusetts waters under Alternative 6 (Draft). Numerous commenters cited safety concerns for those fishing in inshore waters that would prevent them from fishing with a minimum of three traps per trawl. Allowing two traps per trawl instead of three would alleviate safety concerns while still resulting in a reduction of vertical lines since single traps would be banned.

- NMFS received numerous comments opposing the proposed gear marking in the exempted waters. Many considered this impractical and potentially costly. Alternative 6 (Preferred) would not require gear marking in exempt waters but would still increase the length and frequency of the marks in regulated waters.

- Alternative 6 (Draft) proposed to exempt New Hampshire state waters from the ALWTRP including both current and proposed management measures. Alternative 6 (Preferred) would exempt New Hampshire state waters from the proposed management measures only. Those fishing in state waters would not have to follow the proposed minimum number of traps per trawl requirement; however, they would still be required to mark their gear and following current regulations (use of weak links and sinking groundline, etc).

- Alternative 6 (Preferred) includes two changes in the coastal waters of Maine to address the numerous comments NMFS received about safety concerns regarding the proposed number of traps per trawl. First, a ¼ mile buffer would be created around three inhabited islands in Maine (Monhegan, Ragged, and Matinicus) that would allow those fishing in

these areas to continue to fish with single traps. Second, NMFS would allow those fishing in Maine's pocket waters to abide by the proposed traps per trawl requirement for state waters even though Maine's pocket waters occur outside the 3-mile line traditionally used to define state waters. NMFS Office of Law Enforcement defines these waters as state waters for enforcement purposes. To ease enforcement and address safety concerns NMFS would adopt this definition of pocket waters.

Because the alternatives all affect roughly the same number of vessels, the expected magnitude of such impacts across alternatives is likely to be similar. The potential for increased crowding, competition and gear conflicts, however, is greatest under Alternatives 4 and 5, which include the most extensive seasonal area closures.

The public welfare benefits associated with increased whale protection are likely to be similar across all alternatives. As noted, the analysis measures the change in whale protection offered by a given alternative as a change in the co-occurrence of whales and vertical lines. By this measure, Alternative 5 offers the greatest protection to whales, with a reduction in co-occurrence (upper bound scenario) of 42 percent. Alternative 2 offers the least benefit, with a reduction in co-occurrence (lower bound scenario) of 36 percent. These biological benefits have socioeconomic implications for the general public. Increasing whale populations would have a positive impact on the consumer surplus derived from whale watching (a use benefit) and may increase producer surplus for operators of whale watch vessels. Likewise, whale conservation may enhance intrinsic values that society holds for healthy, flourishing whale populations.

Exhibit 1-8

SUMMARY OF SOCIOECONOMIC IMPACTS BY ALTERNATIVE

Parameter	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6 (Draft)	Alternative 6 (Preferred)
Number of Heavily Affected Vessels (Upper Bound Scenario)	0	0	0	163	163	90	90
Total Employment on Heavily Affected Vessels (Upper Bound Scenario)	NA	NA	NA	330	330	179	179
Anticipated Reduction in Lobster Landings (Upper Bound Scenario)	0	1,283,000 lbs.	997,000 lbs.	2,112,000 lbs.	1,807,000 lbs.	1,235,000 lbs.	1,231,000 lbs.
Impacts on Dealers	No change	Minor short-term supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible
Impacts on Processors	No change	Minor short-term supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible
Other Potential Negative Social Impacts	No change	Minor	Some potential for increased congestion and gear conflict	Greater potential for increased congestion and gear conflict	Greater potential for increased congestion and gear conflict	Moderate potential for increased congestion and gear conflict	Moderate potential for increased congestion and gear conflict
Positive Social Impacts (Reduction in Baseline Co-occurrence Score, Upper Bound Scenario)	No change (0.0 percent change in baseline co-occurrence score)	Public welfare benefits of increased whale protection (36.1 percent change in baseline co-occurrence score)	Public welfare benefits of increased whale protection (37.7 percent change in baseline co-occurrence score)	Public welfare benefits of increased whale protection (40.8 percent change in baseline co-occurrence score)	Public welfare benefits of increased whale protection (42.0 percent change in baseline co-occurrence score)	Public welfare benefits of increased whale protection (38.2 percent change in baseline co-occurrence score)	Public welfare benefits of increased whale protection (38.2 percent change in baseline co-occurrence score)

The minimum trawl length requirements yield the greatest reduction in co-occurrence for the associated compliance cost. In contrast, closures are less cost-effective, as evidenced by their higher cost per unit reduction in co-occurrence.

Alternative 3 is the most cost-effective of the alternatives ($56,000 to $119,000 per unit of co-occurrence reduction). This is in part because the costs attributed to the seasonal closure of the Cape Cod Bay Restricted Area are relatively low. In addition, this alternative includes modifications to the gear reconfiguration requirements specified in Alternative 2 that are estimated to have a greater impact on co-occurrence at a lower total cost. On this basis, Alternative 3 can be considered superior to Alternative 2.

NMFS has considered the benefit and cost information presented above and designated Alternative 6 (Preferred) as its preferred alternative. The reduction in co-occurrence achieved under this alternative is greater than that estimated for some of the other alternatives considered, including than that achieved under Alternatives 2, or 3. The reduction in co-occurrence achieved under Alternative 4 and 5 is greater than that achieved under Alternative 6 (Preferred) but does so at a higher estimated cost. NMFS believes that its preferred alternative addresses the Purpose and Need for Action stated in this FEIS, incorporating measures that will help to conserve large whales by reducing the potential for interactions with commercial fishing gear that may lead to serious injury or mortality. In addition, NMFS believes that its preferred alternative achieves these goals while reducing, to the extent possible, the adverse socioeconomic impacts of the rule. On this basis, NMFS believes that Alternative 6 (Preferred) offers the best option for achieving compliance with MMPA and ESA requirements.

1.4 CHANGES FROM DEIS TO FEIS

In response to public comment on the DEIS and proposed rule, as well as new information obtained since the development of these documents, NMFS has made a number of changes to the EIS. The most important substantive changes include:

- Modifications to Alternative 6 (Draft), which resulted in the addition of Alternative 6 (Preferred) to the analysis.

- Alternative 6 (Preferred) was chosen as the preferred alternative instead of Alternative 5 which was previously labeled as preferred in the DEIS. Alternative 6 (Preferred) incorporates modifications to exemptions and required number of traps per trawl in New Hampshire and Rhode Island state waters; addition of a ¼ mile buffer around three inhabited Maine islands; defining Maine's pocket waters as state waters; and modification to the gear marking scheme. Discussion of Alternative 6 (Preferred) has been added to Volume I of the EIS where appropriate.

- Updates to the large whale entanglement information presented in Chapter 2 of Volume I.

- Updates on recent actions for Fishery Management Plans, which is incorporated into Chapters 4 and 9.

- Expansion of "other affected species" section to further discuss the effects of climate change, ocean noise, offshore wind/energy projects and exempted areas on sea turtles.

- Updates and adjustments to the analysis of Alternatives presented related to correcting a coordinate of Maine's 6-mile line.

- Addition of Volume II of the EIS, which describes NMFS' response to comments received during the public comment period on the DEIS and proposed rule; provides a summary of written and oral comments received during the scoping meetings following the agency's publication of the Notice of Intent to prepare an EIS; and provides copies of written comments on the DEIS that were received.

1.5 AREAS OF CONTROVERSY

Numerous interest groups have participated in the formulation and refinement of the ALWTRP. In addition to ALWTRT meetings, NMFS supported this rulemaking by conducting a series of public meetings held at various locations on the east coast during the summer of 2011, and further refined the alternatives based on public comment on the DEIS. Through public outreach, NMFS has attempted to gather and accommodate many viewpoints, pursuing whale conservation objectives while remaining sensitive to the many regulatory pressures on the fishing industry. The dialogue that has occurred highlights a number of key areas of controversy that NMFS attempted to address in the regulatory alternatives examined:

- Whale conservationists emphasize that whale entanglements have continued despite the existing ALWTRP requirements. Some conservationists think that NMFS should reduce the risk associated with vertical line immediately and not wait for the rulemaking process. Continued serious injury and mortality of right, humpback, and fin whales due to entanglement is the primary motivating factor behind refinement of the ALWTRP. The alternatives under consideration seek to reduce large whale entanglement by decreasing the number of vertical lines in the water or modifying the gear so that the resulting entanglement does not result in a serious injury or mortality. Chapter 3 of Volume I further explains the revisions under consideration to the existing ALWTRP.

- A fundamental issue concerns the significance of fishing gear entanglement within the overall context of factors that contribute to Atlantic large whale mortality. The cumulative effects analysis in this EIS considers other stresses on whales (for example, ship strikes and water pollution) and the measures underway to address these stresses through other initiatives.

- Specification of areas and times of proposed closures are in effect is a major issue of concern. Because whales exhibit regular behavioral patterns (e.g., migration, feeding), NMFS seeks to maximize the effectiveness of the ALWTRP by designating requirements tailored by region and season. Development of these spatial and temporal requirements involves the consideration of uncertainties and the integration of complex technical input from NMFS researchers and other experts. This EIS examines regulatory alternatives that introduce new gear modification requirements and other provisions that incorporate information about whale movements and behavior. Although much of this information is subject to uncertainty, the information employed in developing the spatial and temporal elements of the alternatives under consideration is the best information currently available.

- Delineation of exempt waters has been a key issue. Conservation advocates stress that extending regulations to all waters offers the greatest protection against entanglement, while other groups argue for exemptions in nearshore waters where recorded whale activity is minimal. NMFS examined right, humpback, and fin whale sightings data in relation to nearshore waters along the east coast of the U.S. This analysis revealed that large whales rarely venture into certain nearshore areas. The alternatives considered in this EIS include modifications to exempted areas that take into account the available data on large whale sightings, amongst other factors.

- The fishing industry is concerned that interactions between large whales and Canadian fishing gear are not being adequately addressed and that the U.S. fishing industry is bearing the entire regulatory burden by being held responsible for all large whale entanglements. Although the measures under consideration in this EIS are designed to address entanglement risks posed by fisheries in U.S. waters, NMFS recognizes that large whales face entanglement risks throughout their range. For example, NMFS is working with representatives from the Canadian Department of Fisheries and Oceans (DFO) to develop and implement protective measures for right whales in Canadian waters. In anticipation of the implementation of Canada's new Species at Risk Act, the group was reconstituted in January 2003. The group remains focused on species-specific conservation, but the charge for the working group has been expanded to include joint assessments, listing criteria, and recovery planning and implementation in a broader sense to include all transboundary marine mammal and protected species stocks (with the exception of Atlantic salmon). The working group's primary efforts are focused on right whale recovery. The working group published a recovery strategy for the North Atlantic Right Whale in June 2009. DFO is currently working on action plans to addess

the implementation of the recovery strategy. NMFS is continuing to work with the Canadian government to develop and implement protective measures for right whales in Canadian waters. In addition, NMFS is working with Canadian whale biologists and support teams to improve and expand disentanglement efforts in Canadian waters.

- Some segments of the commercial fishing industry have expressed concern over the trawling up requirements, stressing safety issues for those that operate in smaller vessels nearshore. The alternatives considered in this EIS offer options for these vessels.

- A final area of controversy has been the rate at which new requirements are introduced. In general, conservationists and NMFS have recommended a more rapid phase-in, while fishing interests have recommended a longer phase-in. The alternatives considered in this EIS seek to balance these recommendations.

1.6 REPORT STRUCTURE

The remainder of this EIS is organized as follows:

- **Chapter 2** reviews the entanglement problem and discusses current ALWTRP requirements.

- **Chapter 3** describes the proposed alternatives for modifying the ALWTRP.

- **Chapter 4** examines the affected environment, focusing on the status of Atlantic large whales and the basic features of the regulated fisheries.

- **Chapter 5** analyzes the biological impacts of the alternatives.

- **Chapter 6** analyzes the economic impacts of the alternatives.

- **Chapter 7** analyzes the social impacts of the alternatives.

- **Chapter 8** reviews and summarizes the findings of the biological, economic, and social impact analyses.

- **Chapter 9** examines the cumulative impacts of the alternatives.

- **Chapter 10** provides the Regulatory Impact Review (RIR), as required by Executive Order 12866.

- **Chapter 11** provides the Final Regulatory Flexibility Analysis (FRFA), in accordance with the requirements of the Regulatory Flexibility Act (RFA) of 1980. The purpose of this analysis is to evaluate the impacts that the regulatory alternatives under consideration would have on small entities and to examine opportunities to minimize these impacts.

- **Chapter 12** briefly summarizes the statutes and executive orders that have guided development of this EIS and explains how the document meets the requirements of all applicable laws.

The document also includes a list of prepares and contributors (Chapter 13), a list of persons or agencies receiving the FEIS for review (Chapter 14), and a glossary, list of acronyms, and index (Chapter 15).

Volume II of the EIS is organized as follows:

- **Chapter 1** describes NMFS response to comments received during public comment periods for the DEIS and proposed rule.

- **Chapter 2** provides a summary of written and oral comments received during the scoping period following the agency's publication of the Notice of Intent to prepare an EIS.

- **Chapter 3** provides copies of written comments on the DEIS that were received.

1.7 REFERENCES

Waring GT, Josephson E, Maze-Foley K, Rosel, PE, editors. 2012. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2011. NOAA Tech Memo NMFS NE 221; 319 p

Waring GT, Josephson E, Maze-Foley K, Rosel, PE, editors. 2013. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2012. NOAA Tech Memo NMFS NE 223; 419 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at http://www.nefsc.noaa.gov/nefsc/publications/

PURPOSE AND NEED FOR ACTION CHAPTER 2

The purpose of the revisions to the Atlantic Large Whale Take Reduction Plan (ALWTRP) that are under consideration is to conserve and provide additional protection to Atlantic large whales, including North Atlantic right whales (*Eubalaena glacialis*), North Atlantic humpback whales (*Megaptera novaeangliae*), and fin whales (*Balaenoptera physalus*). Such revisions would fulfill NMFS' obligations under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). The need for the revisions under consideration is demonstrated by the continuing risk to Atlantic large whales of serious injury or mortality due to entanglement in commercial fishing gear. This chapter describes in detail the purpose and need for revisions to the existing ALWTRP. It is organized as follows:

- Section 2.1 provides an overview of the statutory and regulatory context in which the ALWTRP was created. This section includes descriptions of the MMPA and the ESA, and discusses how the ALWTRP allows the National Marine Fisheries Service (NMFS) to fulfill its obligations under both Acts.

- Section 2.2 summarizes the existing ALWTRP.

- Section 2.3 presents historical data on large whale entanglements, and demonstrates the need for additional action under the ALWTRP.

2.1 STATUTORY AND REGULATORY CONTEXT

Right, humpback, and fin whales are protected by the MMPA and the ESA. The ALWTRP was created in response to provisions of the MMPA, and under its authority. Sections 2.1.1 and 2.1.2 describe the protections that the MMPA and ESA provide for Atlantic large whales, and the requirements of the MMPA that led to the creation of the ALWTRP.

2.1.1 The Marine Mammal Protection Act (MMPA) and Atlantic Large Whales

The MMPA of 1972 provides protection for species or stocks that are, or may be, in danger of extinction or depletion as a result of human activities. The MMPA states that measures should be taken immediately to replenish the population of any marine mammal species or stock that has diminished below its optimum sustainable level. With respect to any stock or species, the "optimum sustainable population" is the number of animals that will result in the maximum productivity of the stock or species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element.

Under the MMPA, the Secretary of Commerce is responsible for the conservation and management of pinnipeds (other than walruses) and cetaceans (whales, dolphins, and porpoises), among other species that spend the majority of their life in marine areas.[1] The Secretary of Commerce has delegated MMPA authority to NMFS. Part of the responsibility that NMFS has under the MMPA involves monitoring populations of marine mammals to maintain optimum levels. If a population falls below its optimum level, it is considered "depleted," and a conservation plan may be developed to guide research and management actions to restore the population to healthy levels.

In 1994, Congress amended the MMPA, establishing new provisions to govern the taking of marine mammals incidental to commercial fishing operations.[2] These new provisions include the preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction. They also include the development and implementation of take reduction plans for stocks that may be reduced or are being maintained below their optimum sustainable population due to interactions with commercial fisheries.

Take reduction plans are required for all "strategic stocks." Under the MMPA, a "strategic stock" is a stock: (1) for which the level of direct human-caused mortality exceeds the Potential Biological Removal (PBR) level; (2) that is declining and is likely to be listed under the ESA in the foreseeable future; or (3) that is listed as a threatened or endangered species under the ESA or as a depleted species under the MMPA.[3] The immediate goal of a take reduction plan is to reduce, within six months of its implementation, the mortality and serious injury of strategic stocks incidentally taken in the course of U.S. commercial fishing operations to below the PBR levels established for such stocks. The long-term goal of a take reduction plan is to reduce, within five years of its implementation, the incidental mortality and serious injury of strategic marine mammals taken in the course of commercial fishing operations to insignificant levels approaching a zero mortality and serious injury rate, taking into account the economics of the

[1] The Secretary of the Interior is responsible for walruses, sea and marine otters, polar bears, manatees and dugongs.

[2] As defined in the MMPA, the term "take" means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.

[3] The Potential Biological Removal (PBR) level is defined in the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock annually while allowing that stock to reach or maintain its optimum sustainable population. The parameters for calculating the PBR level are described in the MMPA.

fishery, the availability of existing technology, and existing state or regional fishery management plans.[4]

Right whales, humpback whales, and fin whales are listed as endangered species under the ESA and are thus considered strategic stocks under the MMPA. In response to its obligations under the MMPA, NMFS established the Atlantic Large Whale Take Reduction Team (ALWTRT) in 1996 to develop a plan for reducing the incidental take of large whales in commercial fisheries along the Atlantic Coast to below PBR. The ALWTRT consists of representatives from the fishing industry, state and Federal resource management agencies, the scientific community, and conservation organizations. The purpose of the ALWTRT is to provide guidance to NMFS in developing and amending the ALWTRP to meet the goals of the MMPA with respect to Atlantic large whales. The last meeting of the full ALWTRT was held in January of 2012.

2.1.2 The Endangered Species Act (ESA) and Atlantic Large Whales

The ESA provides for the conservation of endangered and threatened species that are at risk of extinction throughout all or a significant portion of their range and the conservation of the ecosystems on which they depend.[5] The right whale, humpback whale, and fin whale species are all federally listed as endangered and are therefore subject to protection under the ESA. Section 7 of the ESA directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. When a proposed Federal action may affect an ESA-listed marine species, Section 7 directs that the "Action agency" consult with the Secretary of Commerce; this is referred to as a Section 7 consultation.[6,7] The Secretary of Commerce has delegated this consultation authority to the National Oceanic and Atmospheric Administration (NOAA). During a Section 7 consultation initiated to assess impacts of a NMFS action on an endangered whale species, NOAA acts as the Action agency *and* represents the Secretary of Commerce, as the consulting agency. The following are examples of actions by NMFS that may result in Section 7 consultations:

- Issuance of measures implementing a fishery management plan;

[4] Unlike PBR, the MMPA does not define the calculation of "insignificant" mortality and serious injury rates approaching zero. For the purposes of the ALWTRP, NMFS has established a long-term goal of reducing incidental mortality rates to no more than ten percent of the PBR level for each stock. NMFS developed and published a formal regulatory definition of "zero mortality rate goal." See NMFS' July 20, 2004, final rule (69 FR 43338).

[5] "Species," as defined by the Act, includes any subspecies of fish, wildlife, or plant and any distinct population segment of any vertebrate species which interbreeds when mature.

[6] The "Action agency" is the Federal agency charged with permitting, conducting or funding the proposed activity serving as the basis for the consultation.

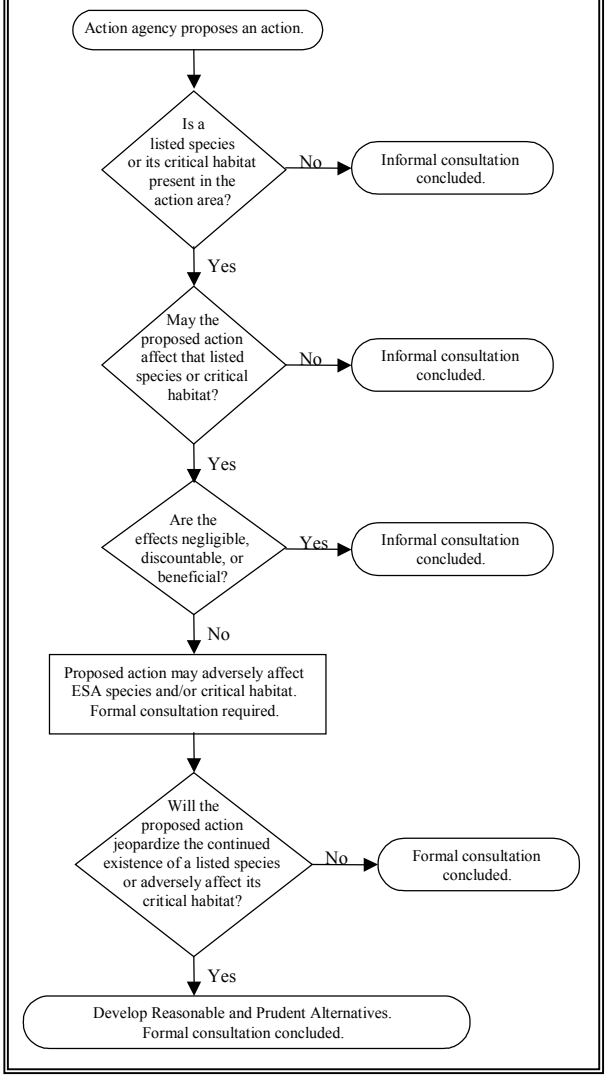
[7] Federal agencies must consult with the Secretary of the Interior when a proposed action may affect an ESA-listed species under the Department of Interior's purview.

- Issuance of exempted fishing permits;
- Measures to implement a take reduction plan; and
- NMFS' provision of funds to support research activities.

Section 7 consultations may be formal or informal. Informal consultation provides an opportunity for communication between the consulting agency (e.g., NMFS) and the Action agency in order to identify whether formal consultation is needed and, if so, to identify how the proposed action could be modified to avoid adverse effects. Communication between these parties may occur via letters, phone calls, in-person meetings, or any combination of these. The duration and complexity of these interactions depends on a number of variables, including the species in question, the effects of the proposed activity, and the available data, among others. These discussions are designed to identify and resolve potential concerns at an early stage in the process, thereby avoiding formal consultation. If the conclusion of the informal consultation is that the proposed action is not likely to adversely affect a listed species, the Section 7 process is concluded. If the consulting agency concludes that the proposed action may affect a listed species or designated critical habitat and the Action agency cannot modify the proposed action to avoid the likelihood of adverse effects, then a formal consultation must occur.

Exhibit 2-1

ENDANGERED SPECIES ACT (ESA) SECTION 7 DECISION PROCESS



A formal consultation requires the consulting agency to prepare a Biological Opinion as to whether or not the proposed action is likely to jeopardize the continued existence of a listed species or adversely modify critical habitat. Under the ESA, if a Biological Opinion finds that a proposed action is likely to jeopardize a listed species or adversely modify critical habitat, the consulting agency must identify "Reasonable and Prudent Alternatives," which the Action agency should assist in developing. Reasonable and Prudent Alternatives (RPAs) are alternative actions identified during formal consultation that (1) can be implemented in a manner consistent with the intended purpose of the action; (2) can be implemented consistent with the scope of the Action agency's legal authority and jurisdiction; (3) are economically and technically feasible; and (4) avoid the likelihood of jeopardizing the continued existence of listed species or resulting

in the destruction or adverse modification of critical habitat. If adopted by the action agency, the reasonable and prudent alternatives do not undergo subsequent consultation to meet the requirements of section 7(a)(2). The action agency's acceptance in writing of the Services' reasonable and prudent alternative concludes the consultation process. Exhibit 2-1 illustrates the ESA Section 7 decision process.

To assess effects on large whale, sea turtle, and listed fish species protected under the ESA, NMFS has prepared Biological Opinions for the continued authorization of Federal fisheries under the Fishery Management Plans for the multispecies, spiny dogfish, and monkfish fisheries, and under Federal regulations for the lobster fishery, amongst others. Section 7 consultations were first initiated for each of these fisheries either at the time that the Fishery Management Plan was created to manage the fishery or, in the case of lobster, at the time of a significant amendment (Amendment 5) to the Federal Lobster Management Plan. The Northeast multispecies fishery has a long consultation history, including formal and informal Section 7 consultations, beginning with a formal consultation initiated on June 12, 1986. Formal consultation was first initiated for spiny dogfish on August 13, 1999; for monkfish on December 21, 1998; and for lobster on March 23, 1994.[8] Subsequent ESA Section 7 consultations on those fisheries incorporated the ALWTRP as a Reasonable and Prudent Alternative to avoid jeopardy to right whales. NMFS reinitiated consultation on May 4, 2000, for the multispecies, spiny dogfish, and monkfish gillnet fisheries, and on June 22, 2000, for the lobster fishery, following (1) new whale entanglements resulting in serious injuries to right whales; (2) at least one right whale mortality in gillnet gear; (3) new information indicating a declining status for western North Atlantic right whales; and (4) revisions to the ALWTRP.

The Biological Opinions from the May/June 2000 reinitiated Section 7 consultations, finalized June 14, 2001, found that NMFS' administration of the four Federal fisheries, as modified by the ALWTRP requirements in effect at that time, was likely to jeopardize the continued existence of the western North Atlantic right whale.[9] The Biological Opinions identified a Reasonable and Prudent Alternative with multiple components designed to avoid the likelihood of jeopardy to right whales. The RPA measures included:

- Seasonal Area Management (SAM);
- Dynamic Area Management (DAM);
- An expansion of gillnet gear modification requirements and restrictions to Mid-Atlantic waters and modification of fishing practices in Southeastern waters;

[8] The spiny dogfish and monkfish species were subject to Section 7 consultation as part of the multispecies fishery until managed under their own management plans in 1999. The lobster fishery was first considered in a formal consultation on the effects of all fisheries (including the lobster fishery in Federal waters) on threatened and endangered species conducted for the implementation of the Marine Mammal Exemption Program in 1988.

[9] The June 14 Biological Opinions also concluded that these fisheries were not likely to destroy or adversely modify habitat critical to right whales or to jeopardize the continued existence of other endangered species.

- Continued gear research and modifications; and
- Additional measures that implement and monitor effectiveness of the Reasonable and Prudent Alternative.

These measures were intended, in combination, to reduce the risk of serious injury and mortality to large whales from entanglements in commercial fishing gear.

The SAM and DAM programs and revised gear modification requirements and restrictions, as specified in the June 14, 2001, Biological Opinions for the multispecies, spiny dogfish, and monkfish Fishery Management Plans, and Federal regulations for the American lobster fishery, were incorporated into the ALWTRP via a series of final rules, corrections, and technical amendments issued from January 2002 to August 2003. In this way, NMFS implemented the Reasonable and Prudent Alternative specified in the June 14, 2001, Biological Opinions to meet its obligations under Section 7 of the ESA.

An informal consultation under the ESA was concluded for the rule to modify the ALWTRP on December 21, 2004. As a result of the informal consultation, the Regional Administrator determined that the measures to modify the ALWTRP were not likely to adversely affect ESA-listed cetaceans, sea turtles, fish, or critical habitat that occur within the area affected by the rulemaking. Modifications were made to the ALWTRP to more broadly address the incidental entanglement of large whales in fishing gear that result in serious injury and mortality. Some of these modifications (e.g., regulating additional trap/pot and gillnet fisheries under the ALWTRP, requiring the broad-based use of sinking and/or neutrally buoyant groundline) are expected to have an effect on ESA-listed species. However, depending on the species, all of the effects are expected to be either beneficial or negligible.

In 2002, eight right whales were observed entangled after implementation of the RPA measures. One of the eight, a female right whale born in 2000 (RW 3107), had line with an attached buoy wrapped around and cutting into her tail stock. Several disentanglement attempts were made and she was subsequently freed of the gear. The recovered gear was examined to obtain further information on the entanglement event. NMFS could not positively identify the fishery or owner of the gear. However, based on the examination, NMFS concluded that the gear was consistent with that used in the inshore lobster trap fishery (Whittingham et al., 2003). This conclusion was based on the configuration of the recovered gear, including the presence of a weak link with a breaking strength of no more than 600 lb (272.4 kg). Six weeks after the disentanglement, her carcass washed ashore on Nantucket, MA.

Although the exact cause of death could not be determined, the necropsy of RW 3107 did reveal substantial tissue damage to the tail stock in the area where the entangling gear had been present. A draft necropsy report describes the most likely cause of death (based on the available evidence) as an infection or other debilitating condition caused by the injuries to the tail stock. NMFS reviewed the necropsy report and considered whether it provided sufficient information to show, based on RPA monitoring criteria, that the RPA was not effective at avoiding the likelihood of jeopardy to right whales. On June 13, 2003, NMFS received confirmation from the Northeast Fisheries Science Center (NEFSC) that the Atlantic Scientific Review Group (ASRG) concurred with the NEFSC finding that the death of RW 3107 was an entanglement related mortality.

There is no way to determine exactly when and where RW 3107 became entangled. She was last seen prior to the entanglement in December 2001 off of South Carolina. She was next seen (entangled) in July 2002 in Canadian waters off of Nova Scotia. Although RW 3107 could have become entangled in Canadian waters, NMFS considers this unlikely since Canadian trap fishers (whether for lobster, crab, or fish) are not required to use a 600-lb (272.4-kg) weak link. The more likely scenario is that RW 3107 became entangled in U.S. waters. While it is possible that she became entangled prior to when the RPA measures went into effect, this is somewhat irrelevant since the weak link on the entangling gear was the same breaking strength as that required by the RPA for certain lobster fishing areas.

In summary, while the gear recovered from RW 3107 cannot be identified as originating from the U.S. lobster fishery, NMFS has determined that the gear is consistent with gear approved for use in the lobster fishery that is conducted in portions of the U.S. Exclusive Economic Zone (EEZ). In addition, NMFS has been advised that RW 3107 died as a result of injuries caused by the entanglement. Therefore, based on the RPA monitoring criteria from the June 14, 2001, Biological Opinion, NMFS concluded that the entanglement event for RW 3107 provides evidence that the RPA described in the June 14, 2001, Opinion is not effective at avoiding the likelihood of jeopardizing the continued existence of right whales by the lobster trap fishery.

2.1.2.1 ALWTRP and Biological Opinions

At the 2003 ALWTRT meeting, the ALWTRT agreed to manage entanglement risk by first reducing the risk associated with groundlines and then reducing the risk associated with vertical lines in commercial trap/pot and gillnet gear. In June 2005, NMFS issued a proposed rule and in October 2007, NMFS issued a final rule which implemented broad-based gear modifications to replace the SAM and DAM programs. This broad-based gear modification strategy includes expanded weak link and sinking groundline requirements; additional gear marking requirements; changes in boundaries; seasonal restrictions for gear modifications; expanded exempted areas; and regulatory language changes for the purposes of clarification and consistency (72 FR 57104, October 5, 2007). The broad-based sinking groundline requirement for trap/pot fishermen became fully effective on April 5, 2009. This final rule also incorporates a recent amendment to the ALWTRP (72 FR 34632, June 25, 2007) that implemented, with revisions, previous ALWTRP regulations by expanding the Southeast U.S. Restricted Area to include waters within 35 nm (64.82 km) of the South Carolina coast, dividing the Southeast U.S. Restricted Area into Southeast U.S. Restricted Areas North and South, and modified regulations pertaining to gillnetting within the Southeast U.S. Restricted Area.

As stated previously, a number of Biological Opinions on fisheries issued in 2001 concluded that continued operation of these fisheries was likely to jeopardize the continued existence of ESA-listed right whales as a result of entanglement in pot/trap gear used in the fishery. The RPA in these Biological Opinions included, in part, implementation of the SAM program and the DAM program to reduce the likelihood that right whale interactions with pot/trap gear used in the American lobster fishery would result in serious injury or mortality. The RPA measures were implemented as part of the ALWTRP. Following implementation of these measures which replaced the DAM and SAM programs with broad-based gear modifications, consultation on these fisheries was reinitiated. These consultations, which concluded in October

2010, evaluated the effect of the proposed action, which included the measures under each of the fishery management plans as well as those under the ALWTRP. Specifically, these Biological Opinions stated that it was anticipated that the final regulations implementing the vertical line strategy would prioritize risk reduction in areas where there is the greatest co-occurrence of vertical lines and large whales. The Biological Opinions stated that a model was being developed and constructed to allow gear configurations to be manipulated and determine what relative co-occurrence reductions (as a proxy for risk) can be achieved by gear configuration changes and/or effort reductions by area. This co-occurrence analysis is an integral component of the vertical line strategy that will further minimize the risk of large whale entanglement and associated serious injury and death. The Opinions identified the steps being taken by the agency to develop, analyze and implement a vertical line reduction rule including stating that the proposed rule would be published in 2013 and the final rule in 2014. After reviewing the current status of right, humpback, fin, and sei whales as well as loggerhead and leatherback sea turtles, the environmental baseline and cumulative effects in the action area, the effects of the continued operation of the American Lobster, bluefish, dogfish, monkfish, multispecies, skate, squid, mackerel and butterfish and summer flounder, scup and Northern black sea bass FMPs, in compliance with the requirements of the ALWTRP, in October 2010 NMFS issued its Biological Opinions that these proposed activities are likely to adversely affect, but not jeopardize the continued existence of these species.

Following implementation of the ground line rule, the NMFS and the ALWTRT turned focus to vertical line risk reduction, consistent with the decision of the ALWTRT in 2003. At the 2009 ALWTRT meeting, the Team agreed on a schedule to develop a management approach to reduce the risk of serious injury and mortality due to vertical line. As a result of this schedule, NMFS committed to publishing a final rule to address vertical line entanglement by 2014 as previously presented in the Biological Opinions. The approach for the vertical line rule focuses on reducing the risk of vertical line entanglements in high impact areas versus a wide-broad scale management scheme. Using fishing gear survey data and whale sightings per unit effort (SPUE), a model was developed to determine the co- occurrence of fishing gear density and whale density. The ALWTRT Northeast Subgroup met in November 2010 and the Mid-Atlantic/Southeast Subgroup met in April 2011 to review the co-occurrence model and consider its implications for an overall management strategy to address vertical line entanglements. The Team agreed NMFS should use the model to consider and develop possible options to address fishery interactions with large whales by reducing the potential for entanglements, minimizing adverse effects if entanglements occur, and mitigating the effects of any unavoidable entanglements. In July and August 2011, 15 scoping meetings were held along the coast to solicit feedback on the vertical line risk reduction strategy. The information provided at the scoping meetings was reviewed at a full ALWTRT meeting in January 2012.

2.2 OVERVIEW OF THE ATLANTIC LARGE WHALE TAKE REDUCTION PLAN (ALWTRP)

The ALWTRP seeks to reduce serious injury to and/or mortality of large whales due to incidental entanglement in U.S. commercial fishing gear. Although the plan is focused on right, humpback, and fin whales, its implementation also benefits minke whales. The ALWTRP consists of restrictions on where and how gear can be set; research into whale populations, whale

behavior, and fishing gear; outreach to inform fishermen of the entanglement problem and to seek their help in understanding and solving the problem; and a program to disentangle whales that do get caught in gear.[10] Section 2.2.1 summarizes the gear types, fishing areas, and specific fisheries currently regulated under the plan, and Section 2.2.2 discusses the gear modification requirements and restrictions currently in place.

2.2.1 Affected Fisheries and Fishing Areas

As required by the MMPA, NMFS maintains a List of Fisheries (LOF) that places each commercial fishery into one of three categories. Fisheries are categorized according to the level of serious injury and mortality of marine mammals that unintentionally results from the fishery. The categorization in the LOF determines whether participants in that fishery are subject to certain provisions of the MMPA such as registration, observer coverage, and take reduction plan requirements. Individuals fishing in Category I or II fisheries must comply with requirements of any applicable take reduction plan.[11]

Categorization of fisheries is based on a two-tiered, stock-specific approach. Tier 1 considers the impacts of all fisheries on a stock. If the total annual mortality and serious injury rates within a stock resulting from all fisheries are less than or equal to ten percent of the stock's potential biological removal rate (PBR), all fisheries associated with this stock fall into Category III. If mortality and serious injury rates are greater than ten percent of PBR, a Tier 2 analysis occurs. This analysis compares fishery-specific annual mortality and serious injury rates to a stock's PBR. If the mortality and serious injury rates associated with a fishery are greater than or equal to 50 percent of PBR, it is classified as Category I. If these rates are greater than one percent but less than 50 percent of PBR, the fishery is classified as Category II. If, under the Tier 2 analysis, the annual mortality and serious injury rates associated with a fishery are less than or equal to one percent of a stock's PBR, the fishery is classified as Category III (68 FR 41726).

The LOF indicates which fisheries NMFS may regulate under the ALWTRP.[12] Specific fisheries were initially identified for inclusion under the ALWTRP based on documented whale interactions. In 1996, NMFS announced its intention to regulate the following Category I or II fisheries under the ALWTRP, based on the following documented whale interactions (61 FR 40819):

[10] For more information on NMFS activities undertaken as part of the ALWTRP, see the plan web site at http://www.nero.noaa.gov/whaletrp/.

[11] Once a fishery is elevated to Category I or II status, it may be subject to the ALWTRP; however, NMFS retains discretion regarding which fisheries it covers in the Plan to provide adequate protection to right, humpback, and fin whales.

[12] Marine mammal take reduction plans relevant to Category I and II fisheries in the Atlantic Ocean include the Harbor Porpoise Take Reduction Plan (50 CFR 229.34), the ALWTRP (50 CFR 229.32), and the Bottlenose Dolphin Take Reduction Plan (50 CFR 229.35).

- **Gulf of Maine, Mid-Atlantic lobster trap/pot fishery:**[13] One record of a serious injury and/or mortality of a northern right whale, and 11 records of serious injury and/or mortality of humpback whales were reported for this fishery from 1990 to 1994. In addition, NMFS received several reports of right whale entanglements prior to 1990 and after 1994 which are or may be attributable to the lobster fishery.

- **Mid-Atlantic coastal gillnet fishery:**[14] Between 1989 and 1992, 31 humpback whales stranded from New Jersey through Virginia. Twenty-five percent of the stranded whales had scars consistent with net entanglement. Between 1990 and 1996, ten humpbacks stranded in Virginia; three animals had rope abrasion injuries consistent with entanglement in gillnets.

- **New England multispecies sink-gillnet fishery:**[15] As of 1996, strategic marine mammal species/stocks seriously injured or killed in this fishery included several humpback whales and a northern right whale.

- **Southeastern U.S. Atlantic shark gillnet fishery:** A right whale calf was observed in February 1994, approximately ten miles off Jacksonville, Florida, with severe cuts and other injuries. Researchers believe, based on the observed injuries, that the calf was entangled in gillnet gear, then hauled back into the fishing vessel's propeller as the gear was being retrieved. This method of gear retrieval is consistent with the shark gillnet fishery.

Based on NMFS review of entanglement data by fishery and by the types of gear involved in whale entanglements, the ALWTRP was created to mitigate the use of certain gear types likely to entangle whales in areas where whales are likely to occur. Therefore, the ALWTRP regulates fishing activity by gear and fishing location. Specific restrictions on fishing practices (including gear and seasonal requirements) are defined according to gear types and areas, as specified in Exhibit 2-2 (for a list of currently exempted waters within these areas, see Appendix 2-A). Exhibits 2-3 and 2-4 illustrate the location of the specified areas.[16]

[13] Currently the Northeast/Mid-Atlantic American lobster trap/pot fishery in the LOF.

[14] Currently the Mid-Atlantic gillnet fishery in the LOF.

[15] Currently the Northeast sink gillnet fishery in the LOF.

[16] For the specific coordinates of each area, see 50 CFR part 229.32, the ALWTRP regulations, available on the ALWTRP web site at http://www.nero.noaa.gov/whaletrp/.

Exhibit 2-2

FISHING GEAR AND AREAS REGULATED UNDER THE ALWTRP

Specified Gear	Specified Areas
Traps/Pots	• Northern Inshore State Trap/Pot Waters Area • Cape Cod Bay Restricted Area • Great South Channel Restricted Area • Stellwagen Bank/Jeffreys Ledge Restricted Area • Northern Nearshore Trap/Pot Waters Area • Southern Nearshore Trap/Pot Waters Area • Offshore Trap/Pot Waters Area
Anchored Gillnets	• Cape Cod Bay Restricted Area • Great South Channel Restricted Gillnet Area • Great South Channel Sliver Restricted Area • Stellwagen Bank/Jeffreys Ledge Restricted Area • Other Northeast Gillnet Waters Area • Mid-Atlantic Coastal Gillnet Waters Area
Other Gillnets	• Mid-Atlantic Coastal Waters Area (drift gillnets) • Southeast U.S. Restricted Area North and South • Southeast U.S. Monitoring Area • Other Southeast Gillnet Waters
Source: 50 CFR part 229.32, available online at http://www.nero.noaa.gov/whaletrp/.	

Exhibit 2-3
Areas Affected by ALWTRP: Trap/Pots

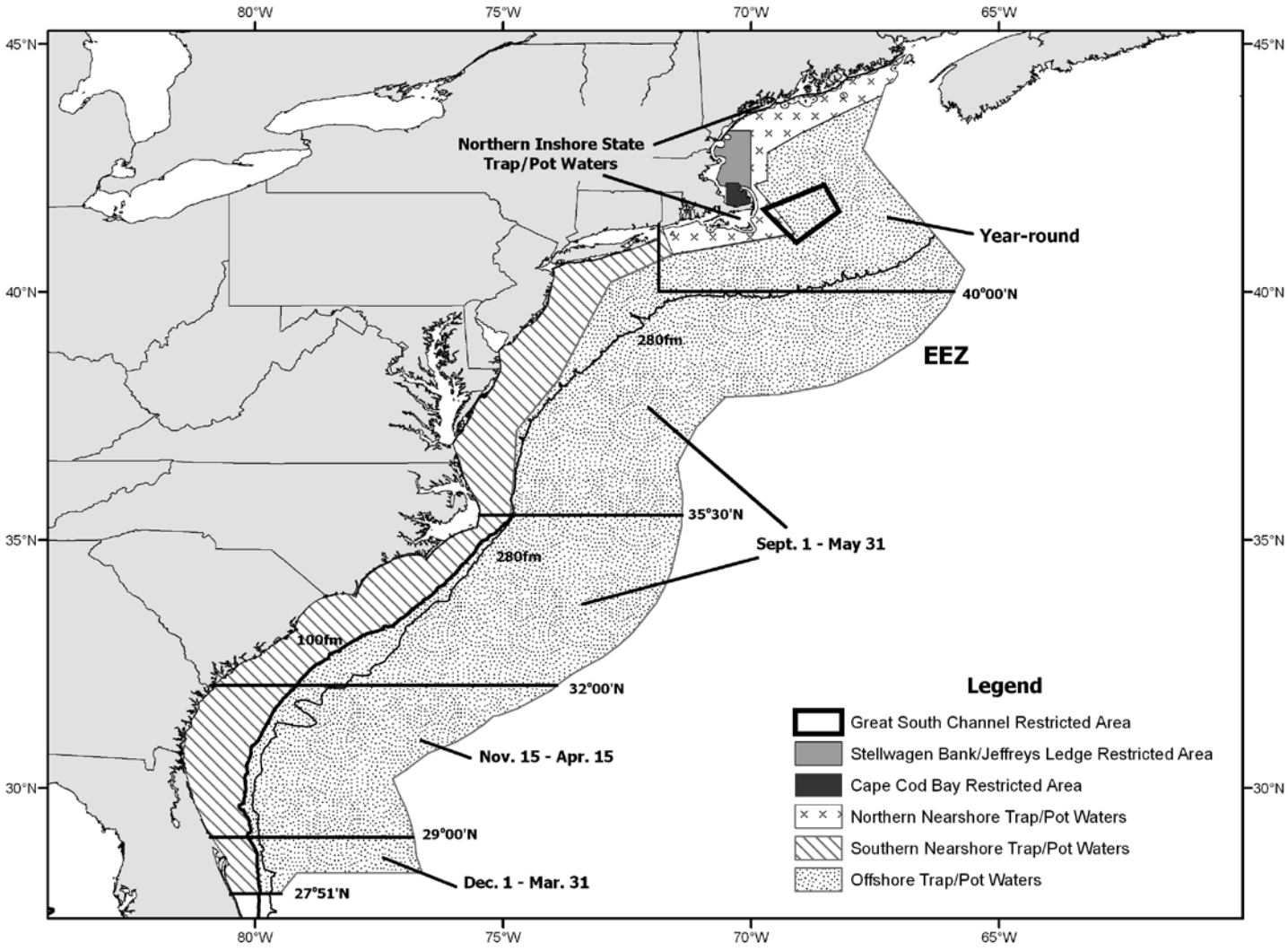
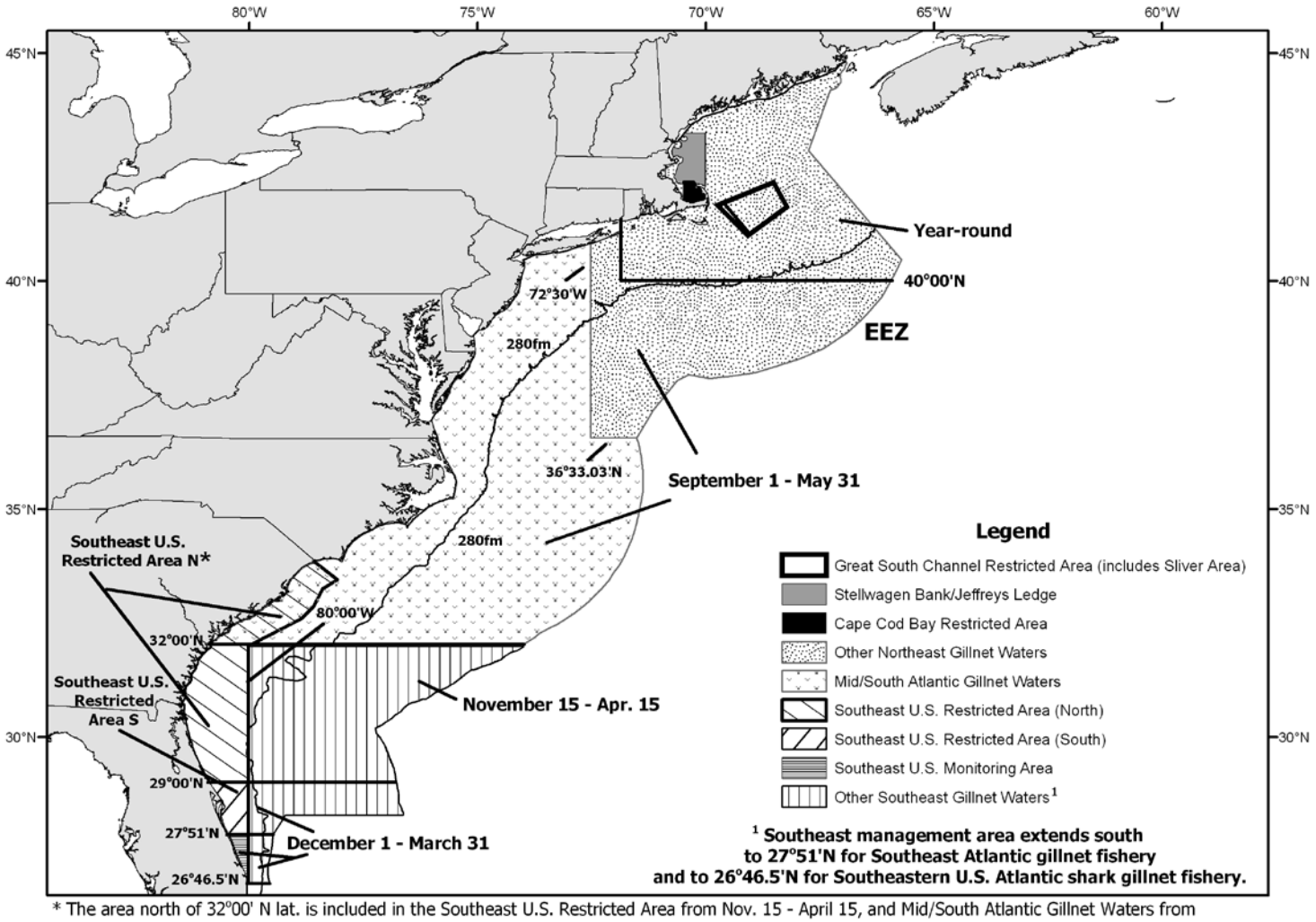


Exhibit 2-4
Areas Affected by the ALWTRP: Gillnets



* The area north of 32°00' N lat. is included in the Southeast U.S. Restricted Area from Nov. 15 - April 15, and Mid/South Atlantic Gillnet Waters from Sept. 1 - Nov. 14 and April 16 - May 31.

The LOF is revised annually based on new information regarding marine mammal interactions (some fisheries take marine mammals in ways other than entanglement, such as hooking). Exhibit 2-5 lists Category I and II fisheries in the Atlantic Ocean for 2013 (78 FR 53336, August 29, 2013).

Exhibit 2-5

LIST OF FISHERIES, CATEGORY I AND II DESIGNATIONS
(Atlantic Ocean Fisheries Only)

Category I Fisheries	
Gillnet Fisheries	Mid-Atlantic gillnet Northeast sink gillnet
Longline Fisheries	Atlantic Ocean large pelagics longline
Trap/Pot Fisheries	Northeast/Mid-Atlantic American lobster trap/pot
Category II Fisheries	
Gillnet Fisheries	Chesapeake Bay inshore gillnet North Carolina inshore gillnet Northeast anchored float gillnet Northeast drift gillnet Southeast Atlantic gillnet Southeastern U.S. Atlantic shark gillnet
Trawl Fisheries	Mid-Atlantic mid-water trawl (including pair trawl) Mid-Atlantic bottom trawl Northeast mid-water trawl (including pair trawl) Northeast bottom trawl
Trap/Pot Fisheries	Atlantic blue crab trap/pot Atlantic mixed species trap/pot
Haul/Beach Seine Fisheries	Mid-Atlantic haul/beach seine[1] North Carolina long haul seine
Stop Net Fisheries	North Carolina roe mullet stop net
Pound Net Fisheries	Virginia pound net

Notes:
[1] The Mid-Atlantic haul/beach seine fishery is not regulated under the ALWTRP because a beach seine is not considered a gillnet for the purposes of this regulation (see the gillnet definition in Chapter 15).

The fisheries currently regulated under the ALWTRP are those Category I or II fisheries from the LOF that fish with specified gear in specified areas (see Exhibits 2-3, 2-4, and 2-5). Based on the most recent LOF, the following five fisheries are currently regulated under the ALWTRP:

- Northeast/Mid-Atlantic American lobster trap/pot,
- Northeast sink gillnet,
- Southeast Atlantic gillnet,
- Southeastern U.S. Atlantic shark gillnet,[17] and
- Mid-Atlantic gillnet.[18]

[17] The Southeastern U.S. Atlantic shark gillnet fishery as described in this document includes shark gillnetting with five-inch or greater stretched mesh south of the South Carolina/Georgia border.

[18] In North Carolina, fishermen using beach-anchored gillnets or nearshore gillnets may report landings as part of the Mid-Atlantic haul/beach seine fishery, which is not regulated under the ALWTRP. To the extent that fishermen report gillnet landings as part of the haul/beach seine fishery, and do not report gillnet landings as part of the Mid-Atlantic coastal gillnet fishery, costs incurred by those fishermen are not reflected in this analysis.

The ALWTRP includes a variety of gear modification requirements and restrictions. Each regulatory component of the Plan is summarized in section 2.2.2.

2.2.2 Gear Modification Requirements and Restrictions

The ALWTRP specifies both universal gear modification requirements and restrictions, which apply to all lobster traps/pots and anchored gillnets, and area- and season-specific gear modification requirements and restrictions.[19] The universal gear requirements are as follows:

- *No floating buoy line at the surface* – No person may fish with lobster trap or anchored gillnet gear that has any portion of the buoy line that is directly connected to the gear on the ocean bottom floating at the surface at any time. If more than one buoy is attached to a single buoy line or if a high flyer and a buoy are used together on a single buoy line, floating line may be used between these objects.

- *No wet storage of gear* – Lobster traps and/or anchored gillnet gear must be hauled out of the water at least once every 30 days.

- *Knots* – Fishermen are encouraged, but not required, to maintain knot-free buoy lines. Splices are not considered to be an entanglement threat and are thus preferable to knots.

- *Groundlines* - All groundlines must be made of sinking line.

Additional gear modification requirements and restrictions vary by location and date, as well as by gear type. The Plan currently recognizes seven trap/pot areas: Cape Cod Bay Restricted Area, Great South Channel Restricted Area, Stellwagen Bank/Jeffreys Ledge Restricted Area, Northern Inshore State Trap/Pot Waters, Northern Nearshore Trap/Pot Waters, Southern Nearshore Trap/Pot Waters, and Offshore Trap/Pot Waters. The Plan currently recognizes nine gillnet areas: Cape Cod Bay Restricted Area, Great South Channel Restricted Gillnet Area, Great South Channel Sliver Restricted Gillnet Area, Stellwagen Bank/Jeffreys Ledge Restricted Area, Other Northeast Gillnet Waters, Mid/South Atlantic Gillnet Waters, Southeast U.S. Restricted Area (North and South), Southeast U.S. Monitoring Area, and Other Southeast Gillnet Waters. These regulations are summarized in Exhibits 2-6 to 2-8 below.

However, all fishermen using ALWTRP gear in ALWTRP waters are subject to regulation under the ALWTRP. This includes vessels fishing nearshore gillnets, and does not include vessels fishing beach-anchored gillnets or haul/beach seines (see the gillnet definition in Chapter 15).

[19] The requirements specified in the ALWTRP are in addition to existing requirements under the Fishery Management Plans of affected fisheries and any other applicable regulations.

Exhibit 2-6

TRAP/POT GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
Cape Cod Bay Restricted Area (Federal and State waters) (January 1 to May 15)	**January 1 to May 15:** • Compliance with the **Universal Requirements**: » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • Compliance with **Gear Marking Requirements**: » Trap/pot surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. - When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. » Buoy lines to be marked with one 4-inch (10.2 cm), **RED**, mark midway along the buoy line. • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 500 lb*; • All buoy lines must be made of sinking line, except for the bottom 1/3 which may be floating; • Only multiple traps will be permitted (no single traps or 3-trap trawls) where trawls are to be set in a 2-trap string or a trawl of 4 or more traps (2-trap strings can have only one buoy line); • All groundlines must be made of sinking line.
Cape Cod Bay Restricted Area (State waters) (May 16 – December 31)	**May 16-December 31 (*State waters only*):** • Compliance with the **Universal and Gear Marking Requirements** (see above). • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 600 lb*; • All groundlines must be made of sinking line.
Cape Cod Bay Restricted Area (Federal waters) (May 16-December 31)	**May 16-December 31 (*Federal waters only*):** • Compliance with the **Universal and Gear Marking Requirements** (see above). • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 600 lb*; • Only multiple traps will be permitted (no single traps) where all traps are to be set in trawls of 2 or more traps (trawls up to and including 5 or fewer traps can have only one buoy line); • All groundlines must be made of sinking line.

Exhibit 2-6

TRAP/POT GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
Great South Channel Restricted Area	**April 1- June 30:** The Great South Channel Restricted Area is **closed** to **all** trap/pot fishing. **July 1- March 31:** • Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • Trap/pot surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines to be marked with one 4-inch (10.2 cm), **RED**, mark midway along the buoy line (overlapping with Lobster Management Area (LMA) 2 and/or the Outer Cape LMA), or **BLACK** (overlapping with the LMA 2/3 Overlap and/or LMA 3). • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of: » no greater than 600 lb* in areas that overlap with LMA 2 and/or the Outer Cape LMA; » no greater than 1,500 lb* in areas that overlap with the LMA 2/3 Overlap and/or LMA 3. • Only multiple traps will be permitted (no single traps) where all traps are to be set in trawls of 2 or more traps (trawls up to and including 5 or fewer traps can have only 1 buoy line) in areas overlapping with LMA 2 and/or the Outer Cape LMA. • All groundlines must be made of sinking line.
Northern Inshore State Trap/Pot Waters Area	• Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • Trap/pot surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines to be marked with one 4-inch (10.2 cm), **RED**, mark midway along the buoy line. • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 600 lb*; • All groundlines must be made of sinking line.

Exhibit 2-6

TRAP/POT GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
Northern Nearshore Trap/Pot Waters Area	• Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • Trap/pot surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines to be marked with one 4-inch (10.2 cm), **RED**, mark midway along the buoy line. • All buoys, flotation devices, and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 600 lb*; • Only multiple traps will be permitted (no single traps) where all traps are to be set in trawls of 2 or more traps (trawls up to and including 5 or fewer traps can have only one buoy line); • All groundlines must be made of sinking line.

Exhibit 2-6

TRAP/POT GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
Offshore Trap/Pot Waters	**Year-round**: • Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • Trap/pot surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines to be marked with one 4-inch (10.2 cm), **BLACK**, mark midway along the buoy line. • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 1,500 lb*; » For the red crab trap/pot fishery, weak links with a maximum breaking strength of 2,000 lb* are required; • All groundlines must be made of sinking line. **November 15-April 15 (between 29° N. lat and 32° N. lat):** • Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days) » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • Compliance with **Gear Marking Requirements**: » Trap/pot surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. - When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. » Buoy lines to be marked with one 4-inch (10.2 cm), **BLACK**, mark midway along the buoy line. • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 1,500 lb*; » For the red crab trap/pot fishery, weak links with a maximum breaking strength of 2,000 lb* are required; • All groundlines must be made of sinking line. **December 1-March 31 (between 29°N. lat and 27° 51' N. lat):** • Compliance with the **Universal and Gear Marking Requirements** (see above). • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 1,500 lb*; » For the red crab trap/pot fishery, weak links with a maximum breaking strength of 2,000 lb* are required; • All groundlines must be made of sinking line.
Southern Nearshore Trap/Pot Waters	**Year-round:** • Compliance with the **Universal Requirements:** » No buoy line floating at the surface.

Exhibit 2-6

TRAP/POT GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
	» No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • Trap/pot surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines to be marked with one 4-inch (10.2 cm), **ORANGE**, mark midway along the buoy line; • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 600 lb*; • All groundlines must be made of sinking line. **September 1-May 31:** • Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • Trap/pot surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines to be marked with one 4-inch (10.2 cm), **ORANGE**, mark midway along the buoy line. • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 600 lb*; • All groundlines must be made of sinking line. **November 15-April 15 (between 29° N. lat and 32° N. lat):** • Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • Compliance with **Gear Marking Requirements**: » Trap/pot surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. - When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. » Buoy lines to be marked with one 4-inch (10.2 cm), **ORANGE**, mark midway along the buoy line. • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 600 lb*; • All groundlines must be made of sinking line.

Exhibit 2-6

TRAP/POT GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
	December 1-March 31 (between 29°N. lat and 27° 51' N. lat): • Compliance with the **Universal and Gear Marking Requirements** (see above). • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 600 lb*; • All groundlines must be made of sinking line**.**
Stellwagen Bank/Jeffreys Ledge Restricted Area	• Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • Trap/pot surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines to be marked with one 4-inch (10.2 cm), **RED**, mark midway along the buoy line. • All buoys, flotation devices, and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 600 lb*; • Only multiple traps will be permitted (no single traps) where all traps are to be set in trawls of 2 or more traps (trawls up to and including 5 or fewer traps can have only one buoy line); • All groundlines must be made of sinking line.

Notes:

* Weak links must be chosen from the list of NMFS approved gear, which includes: off the shelf weak links, rope of appropriate strength, hog rings, and other materials or devices approved in writing. Weak links must be designed in such a way that the bitter end of the buoy line is clean and free of any knots when the weak link breaks.

Source: 50 CFR part 229.32, available online at http://www.nero.noaa.gov/whaletrp/.

Exhibit 2-7

ANCHORED GILLNET GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
Cape Cod Bay Restricted Area	**January 1- May 15:** The Cape Cod Bay Restricted Area is **closed** to **all** gillnet fishing. **May 16 - December 31:** ***For All Gillnet Gear:*** • Gillnet surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines to be marked with one 4-inch (10.2 cm), **GREEN**, mark midway along the buoy line. ***For Anchored Gillnets:*** • Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link with a breaking strength of no greater than 1,100 lb*; • Each net panel must be configured with five or more weak links, depending on panel length, with a breaking strength no greater than 1,100 lb. The weak link placement must meet one of the two configuration options. The same configuration will be required for all gillnet panels in a string; • All gillnets, regardless of number of net panels, will be required to be anchored with the holding power of at least a 22-lb Danforth-style anchor at each end of the net string (must be a burying anchor; no dead weights); • All groundlines must be made of sinking line. ***For Drift Gillnets:*** • Fishing with driftnet gear at ***night*** (i.e., anytime between one-half hour before sunset and one-half hour after sunrise) is **prohibited** unless that gear is tended (i.e., attached to the vessel); • All driftnet gear must be removed from the water and stowed on board before a vessel returns to port.
Great South Channel Restricted Gillnet Area (including the Sliver Area)	**April 1- June 30:** The Great South Channel Restricted Gillnet Area is **closed** to **all** gillnet fishing (not including the **Sliver Area**). **July 1- March 31 (GSC Restricted Gillnet Area) and year-round (GSC Sliver Restricted Gillnet Area)** ***For Anchored Gillnets:*** • Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • Compliance with **Gear Marking Requirements:** » Gillnet surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the

Exhibit 2-7

ANCHORED GILLNET GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
	Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. - When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. » Buoy lines to be marked with one 4-inch (10.2 cm), **GREEN**, mark midway along the buoy line. • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link with a breaking strength of no greater than 1,100 lb*; • Each net panel must be configured with five or more weak links, depending on panel length, with a breaking strength no greater than 1,100 lb*. The weak link placement must meet one of the two configuration options. The same configuration will be required for all gillnet panels in a string; • All gillnets, regardless of number of net panels, will be required to be anchored with the holding power of at least a 22-lb Danforth-style anchor at each end of the net string (must be a burying anchor; no dead weights); • All groundlines must be made of sinking line. ***For Drift Gillnets:*** • Compliance with **Gear Marking Requirements** (see above). • Fishing with driftnet gear at ***night*** (i.e., anytime between one-half hour before sunset and one-half hour after sunrise) is **prohibited** unless that gear is tended (i.e., attached to the vessel); • All driftnet gear must be removed from the water and stowed on board before a vessel returns to port.
Stellwagen Bank/Jeffreys Ledge Restricted Area; and Other Northeast Gillnet Waters Area	***For All Gillnet Gear:*** • Gillnet surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines to be marked with one 4-inch (10.2 cm), **GREEN**, mark midway along the buoy line. ***For Anchored Gillnets:*** • Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link with a breaking strength of no greater than 1,100 lb*; • Each net panel must be configured with five or more weak links, depending on panel length, with a breaking strength no greater than 1,100 lb. The weak link placement must meet one of the two configuration options. The same configuration will be required for all gillnet panels in a string; • All gillnets, regardless of number of net panels, will be required to be anchored with the holding power of at least a 22-lb Danforth-style anchor at each end of the net string (must be a burying anchor; no dead weights); • All groundlines must be made of sinking line.

Exhibit 2-7

ANCHORED GILLNET GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
	For Drift Gillnets: • Fishing with driftnet gear at ***night*** (i.e., anytime between one-half hour before sunset and one-half hour after sunrise) is **prohibited** unless that gear is tended (i.e., attached to the vessel); • All driftnet gear must be removed from the water and stowed on board before a vessel returns to port.
Mid/ South Atlantic Gillnet Waters	**September 1- May 31:** ***For All Gillnet Gear:*** • Gillnet surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines to be marked with one 4-inch (10.2 cm), **BLUE**, mark midway along the buoy line. ***For Anchored Gillnets:*** • Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength no greater than 1,100 lbs; • All gillnet panels are required to have weak links with the breaking strength of no greater than 1,100 lbs in the center of the floatline of each net panel up to and including 50 fathoms (100 yds; 300 ft), or at least every 25 fathoms (50 yds; 150 ft) for longer panels. • Gillnets that do not return to port with the vessel must be configured with five or more weak links per net panel, depending on panel length, with a breaking strength no greater than 1,100 lb, and be anchored with the holding power of at least a 22-lb Danforth-style anchor at each end of the net string (must be a burying anchor; no dead weights). The weak link placement must meet one of two configuration options. The same configuration will be required for all gillnet net panels in a string; • All groundlines must be made of sinking line. ***For Drift Gillnets:*** • Fishing with driftnet gear at ***night*** (i.e., anytime between one-half hour before sunset and one-half hour after sunrise) is **prohibited** unless that gear is tended (i.e., attached to the vessel); • All driftnet gear must be removed from the water and stowed on board before a vessel returns to port.

Notes:
* Weak links must be chosen from the list of NMFS approved gear, which includes: off the shelf weak links, rope of appropriate strength, hog rings, and other materials or devices approved in writing. Weak links must be designed in such a way that the bitter end of the buoy line is clean and free of any knots when the weak link breaks.

Source: 50 CFR part 229.32, available online at http://www.nero.noaa.gov/whaletrp/.

Exhibit 2-8

OTHER GILLNET GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
Southeast U.S. Restricted Area North	**November 15 - April 15:** ***For All Gillnet Gear:*** • Fishing with or possessing gillnets during the restricted period is **prohibited**. • Exemption for vessels in transit with gillnets aboard if: » All nets are covered with canvas or other similar material and lashed or otherwise securely fastened to the deck, rail, or drum; and » All buoys, high flyers, and anchors are disconnected from all gillnets. • No fish may be possessed aboard such a vessel in transit.
Southeast U.S. Restricted Area South	**December 1- March 31:** ***For All Gillnet Gear:*** • Fishing with or possessing gillnets during the restricted period is **prohibited**. » ***Exemption for Southeast Atlantic gillnet fishery*** Fishing with gillnet for Spanish mackerel is exempt from the restrictions from December 1 - December 31, and from March 1 - March 31 if: - Gillnet mesh is between 3.5" and 4 7/8" stretched mesh; - A valid commercial vessel permit for Spanish mackerel has been issued to the vessel in accordance with 50 CFR 622.4(a)(2)(iv) and is on board; - No person may fish with, set, place in the water, or have on board a gillnet with a float line longer than 800 yards; - No person may fish with, set, or place in the water more than one gillnet at any time; - No more than two gillnets, including any net in use, may be possessed at any one time; provided, however, that if two gillnets, including any net in use, are possessed at any one time, they must have stretched mesh sizes that differ by at least 1/4"; - No person may soak a gillnet for more than 1 hour. The soak period begins when the first mesh is placed in the water and ends either when the first mesh is retrieved back on board the vessel or the gathering of the gillnet is begun to facilitate retrieval on board the vessel, whichever occurs first; providing that, once the first mesh is retrieved or the gathering is begun, the retrieval is continuous until the gillnet is completely removed from the water; - No net is set at **night** or when visibility is less than 500 yards; - The gillnet is removed from the water before night or immediately if visibility decreases below 500 yards; - No gillnet is set within 3 nautical miles of a right, humpback, or fin whale; and - The gillnet is removed immediately from the water if a right, humpback, or fin whale moves within 3 nm of the set gear. - The gillnet (regardless of how fished) complies with the "anchored gillnet" requirements, including the universal requirements, as specified for the Mid/South Atlantic Gillnet Waters. » ***Exemption for Southeastern U.S. Atlantic shark gillnet fishery*** Fishing with gillnet for sharks is exempt from the restrictions from December 1- March 31 if: - Gillnet mesh is 5" or greater stretched mesh; - The gillnet is deployed so that it encloses an area of water; - A valid commercial directed shark limited access permit has been issued to the vessel, in accordance with 50 CFR 635.4(e), and is on board; - No net is set at **night** or when visibility is less than 500 yards; - The gillnet is removed from the water before night or immediately if visibility decreases below 500 yards; - Each set is made under the observation of a spotter plane; - No gillnet is set within 3 nautical miles of a right, humpback, or fin whale; and - The gillnet is removed immediately from the water if a right, humpback, or fin whale moves within 3 nm of the set gear. - No person may fish with shark gillnet gear unless the operator of the vessel calls the Southeast

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OTHER GILLNET GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
	Fisheries Science Center Panama City Laboratory in Panama City, FL (phone: 850/234-6451, fax: 850/235-3559), not less than 48 hours prior to departing on any fishing trip to arrange for observer coverage. If the Panama City Laboratory requests that an observer be taken on board a vessel, no person may fish with such gillnet aboard the vessel unless an observer is on board that vessel during the trip. **Night** is defined as anytime between one-half hour before sunset and one-half hour after sunrise. **Gear Marking Requirements for All Gillnet Gear** • Gillnet surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines for **non-shark gillnet gear** to be marked with one 4-inch (10.2 cm), **YELLOW**, mark midway along the buoy line. • **Shark gillnet gear** with webbing of 5" or greater stretched mesh must be marked with two, 4-inch color codes, one designating gear type **(GREEN)** and the other where the gear is set **(BLUE).** » Each color of the two-color codes must be permanently marked on or along the line and must be clearly visible when the gear is hauled or removed from the water. » The two color marks must be placed within 6" of each other. » If the color of the rope is the same as, or similar to, a color code, a white mark may be substituted for that color code. » All buoy lines greater than 4 feet long must be marked within 2 feet of the top of the buoy line (closest to the surface) and midway along the length of the buoy line. » Each gillnet net panel must be marked along both the floatline and the leadline at least once every 100 yards, unless otherwise required.
Southeast U.S. Monitoring Area	**December 1 - March 31** Compliance with **Gear Marking Requirements:** • Gillnet surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Shark gillnet gear with webbing of 5" or greater stretched mesh in the Southeast U.S. Monitoring Area must be marked with two, 4-inch color codes, one designating gear type (**GREEN**) and the other where the gear is set (**BLUE**). » Each color of the two-color codes must be permanently marked on or along the line and must be clearly visible when the gear is hauled or removed from the water. » The two color marks must be placed within 6" of each other. » If the color of the rope is the same as, or similar to, a color code, a white mark may be substituted for that color code. » All buoy lines greater than 4 feet long must be marked within 2 feet of the top of the buoy line (closest to the surface) and midway along the length of the buoy line. » Each gillnet net panel must be marked along both the floatline and the leadline at least once every 100 yards, unless otherwise required. Compliance with the **Vessel Monitoring System (VMS) Requirement:**

Exhibit 2-8

OTHER GILLNET GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
	» No person may fish with or possess gillnet gear for shark with webbing of 5" or greater stretched mesh in the Southeast U.S. Monitoring Area unless the operator of the vessel is in compliance with the vessel monitoring system requirements found in 50 CFR 635.69. » NMFS may select any shark gillnet vessel regulated under the ALWTRP to carry an observer. When selected, the vessels are required to take observers on a mandatory basis in compliance with the requirements for at-sea observer coverage found in 50 CFR 229.7. Any vessel that fails to carry an observer once selected is prohibited from fishing pursuant to 50 CFR part 635.
Other Southeast Gillnet Waters	**November 15 - April 15 (*North* of 29°00' N. lat.) and December 1 - March 31 (*South* of 29°00' N. lat)** ***For All Gillnet Fisheries (non-shark and shark gillnet fisheries):*** • Gillnet surface buoys to be marked to identify the vessel or fishery with one of the following: the owner's motorboat registration number and/or U.S. vessel documentation number; the Federal commercial fishing permit number; or whatever positive identification marking is required by the vessel's home-port state. » When marking is not already required by state or Federal regulations, the letters and numbers to mark gear must be at least 1 inch (2.5cm) in height, block letters or Arabic numbers, in a color that contrasts with the color of the buoy. • Buoy lines for **non-shark gillnet gear** to be marked with one 4-inch (10.2 cm), **YELLOW**, mark midway along the buoy line. • **Shark gillnet gear** with webbing of 5" or greater stretched mesh must be marked with two, 4-inch color codes, one designating gear type **(GREEN)** and the other where the gear is set **(BLUE).** » Each color of the two-color codes must be permanently marked on or along the line and must be clearly visible when the gear is hauled or removed from the water. » The two color marks must be placed within 6" of each other. » If the color of the rope is the same as, or similar to, a color code, a white mark may be substituted for that color code. » All buoy lines greater than 4 feet long must be marked within 2 feet of the top of the buoy line (closest to the surface) and midway along the length of the buoy line. » Each gillnet net panel must be marked along both the floatline and the leadline at least once every 100 yards, unless otherwise required. ***For the Southeast Atlantic gillnet fishery (non-shark gillnetting):*** • Compliance with the **Universal Requirements:** » No buoy line floating at the surface. » No wet storage of gear (all gear must be hauled out of the water at least once every 30 days). » Fishermen are encouraged, but not required, to maintain knot-free buoy lines. • All buoys, flotation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength no greater than 1,100 lb; • All gillnet panels to have weak links with the breaking strength of no greater than 1,100 lb in the center of the floatline of each net panel up to and including 50 fathoms (100yds; 300ft), or at least every 25 fathoms (50yds; 150ft) for longer panels; • Gillnets that do not return to port with the vessel must be configured with 5 or more weak links per net panel, depending on panel length, with a breaking strength no greater than 1,100 lb, and be anchored with the holding power of at least a 22-lb Danforth-style anchor at each end of the net string (must be a burying anchor; no dead weights). The weak link placement must meet one of two configuration options. The same configuration will be required for all gillnet net panels in a string; • All groundlines must be made of sinking line.

Exhibit 2-8

OTHER GILLNET GEAR MODIFICATION REQUIREMENTS AND RESTRICTIONS UNDER THE ALWTRP, BY AREA

Area	Requirements
	For the Southeastern U.S. Atlantic shark gillnet fishery • No net can be set within 3 nm of a right, humpback or fin whale; and • If a right, humpback, or fin whale moves within 3 nm of the set gear, the gear is removed immediately from the water.
Source: 50 CFR part 229.32, available online at http://www.nero.noaa.gov/whaletrp/.	

If a serious injury or mortality of a right whale occurs in the Cape Cod Bay Restricted Area from January 1 through May 15; in the Great South Channel Restricted Area from April 1 through June 30; or in the Southeast U.S. Restricted Area from November 15 through March 31 as a result of an entanglement by trap/pot or gillnet gear allowed in those areas and times, the Assistant Administrator shall close that area to that gear type for the rest of that time period unless the Assistant Administrator revises the restricted period or unless other measures are implemented. The area will remain closed for that same time period in each subsequent year, unless the Assistant Administrator revises the restricted period through a publication in the Federal Register in accordance with the following measures, or unless other measures are implemented through a publication in the Federal Register based on the following measures:

- NMFS verifies that certain gear characteristics are both operationally effective and reduce serious injuries and mortalities of endangered whales;
- New gear technology is developed and determined to be appropriate;
- Revised breaking strengths are determined to be appropriate;
- New marking systems are developed and determined to be appropriate;
- NMFS determines that right whales are remaining longer than expected in a closed area, or have left earlier than expected;
- NMFS determines that the boundaries of a closed area are not appropriate;
- Gear testing operations are considered appropriate; or
- Similar situations occur.

NMFS can modify the ALWTRP based on the occurrence of an entanglement in critical habitat and other measures listed above through publication in the *Federal Register*. NMFS may also modify the ALWTRP using any other emergency authority under the MMPA, the ESA, the Magnuson-Stevens Fishery Conservation and Management Act, or other appropriate authority.

2.3 RATIONALE FOR RULEMAKING

The following discussion presents the rationale for revising the ALWTRP. It begins by describing the means by which whales become entangled in commercial fishing gear. It then provides a historical overview of right, humpback, and fin whale entanglements. Information on minke whale entanglements is also provided, since the ALWTRP should benefit this species. Finally, the discussion demonstrates the need for action by reviewing recent entanglements within the context of the mandates of the MMPA and the ESA.

2.3.1 Nature of Large Whale Entanglements

Atlantic large whales are at risk of becoming entangled in fishing gear because the whales feed, travel and breed in many of the same ocean areas utilized for commercial fishing. Fishermen typically leave fishing gear such as gillnets and traps/pots in the water for a discrete period, after which time the nets/traps/pots are hauled and their catch retrieved. While the gear is in the water, whales may become incidentally entangled in the lines and nets that comprise trap/pot and gillnet fishing gear.

The effects of entanglement can range from no injury to death. "When… [whales] become fouled in gear, normal breathing and movement may be impaired or stopped completely. If the animal does manage to struggle free, portions of gear may remain attached to the body. This trailing gear, often made of durable synthetic material, may create excess drag, snag onto objects in the environment and impede normal behavior like breathing, feeding, movement, or breeding. Other effects include infections and deformations" (Center for Coastal Studies, May 14, 2003).

A scarification analysis conducted by the New England Aquarium (Knowlton et al., 2002) found that juvenile right whales are entangled with greater frequency than adults. Juvenile animals may not have sufficient strength to break free from entangling lines, which can lead to serious injury and infection resulting from the animal "growing into" the lines.

A study of right whale and humpback whale entanglements (Johnson et al., 2005) finds that in cases where the point of gear attachment is known, right whale entanglements frequently (77.4 percent; 24 of 31 entanglement events) involve the mouth, which may indicate that many entanglements occur while whales are feeding.[20] The study also finds that humpback whales are more commonly reported with entanglements in the tail region (53.0 percent; 16 of 30 entanglement events) in cases where the point of attachment is known.[21]

[20] In some cases, other parts of the body in addition to the mouth may have been entangled.

[21] In some cases, other parts of the body in addition to the tail may have been entangled.

From 1997 to 2002, the NMFS Gear Research Team identified various types of trap/pot and gillnet gear involved in entanglements of right, humpback, fin, or minke whales (Kenney and Hartley, 2001; Hartley et al., 2003; Whittingham et al., 2005a):

- Right whales became entangled in inshore and offshore lobster, crab, and other trap/pot-related gear, gillnet and Danish seine gear, as well as aquaculture equipment;
- Humpback whales became entangled in inshore lobster, crab, gillnet, slime eel/hagfish, conch/whelk, and other trap/pot-related gear, as well as tuna hand line gear and line associated with vessel anchoring systems;
- Fin whales became entangled in crab, slime eel/hagfish, and gillnet gear; and
- Minke whales became entangled in inshore lobster, gillnet, and otter trawl gear.

The number of entanglements for which gear type can be identified is too small to detect any trends in the type of gear involved in lethal entanglements. Trap/pot and gillnet gear, however, seem to be the most common, as in 89 percent of the cases the gear was identified as or found to be consistent with trap/pot and gillnet gear (Johnson et al., 2005).[22] The study confirms that vertical lines and floating groundlines pose risks for large whales; however, the authors conclude that any type and part of fixed gear is capable of entangling a whale, and several body parts of the whale can be involved.

2.3.2 History of Large Whale Entanglements

Entanglements are a known source of serious injury and mortality to Atlantic large whales. Although currently available data cannot yet quantify the relative impact of the ALWTRP on the annual number of entanglements, the data do indicate that entanglements resulting in serious injury or mortality continue to be a threat to large whales. Sections 2.3.2.1 to 2.3.2.6 provide an overview of the history of large whale entanglements by species and in summary. These data indicate a need for additional protective measures for large whales.

[22] According to Johnson et al. (2005), this analysis focused primarily upon cases in which the gear involved in an entanglement was recovered and examined by NMFS gear specialists, as well as other sources considered reliable, but also included entanglements for which the gear type and/or part was identified (e.g., by a fisherman or biologist) but not recovered. In some cases, recovered gear can definitively be traced back to a particular fishery; in other cases, parts of the recovered gear may be found to be consistent with gear that is used in a particular fishery. For example, the gear recovered from right whale #3107 consisted of line with a 600-pound weak link, which is consistent with gear used in the lobster trap/pot fishery. Thus, Johnson et al. (2005) classified this case as an entanglement in lobster trap/pot gear that was set in an unknown location.

2.3.2.1 Entanglement Data

The entanglement data presented here come primarily from the 2012 *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments* report, which covers the years from 2006 through 2010 (Waring et al., 2013). These data pertain only to entanglements that NMFS considers to be the primary cause of serious injury or death to a whale.

Care should be used when interpreting entanglement data. The details of a particular mortality or serious injury record often require a degree of interpretation. The assigned cause is based on NMFS' best judgment of the available data; additional information may result in revisions.[23] When reading the following sections on species-specific entanglement data, several factors should be considered: (1) the mortality or injury may involve multiple factors (for example, cases in which whales have been both ship struck and entangled have been discovered); (2) the actual gear type/source is often uncertain; and (3) several types of gear may be involved in a given reported entanglement.

NMFS limits the serious injury designation to only those reports that offer substantiated evidence that the injury is likely to lead to the whale's death.[24] Injuries that impede the whale's locomotion or feeding are not considered serious injuries unless they are likely to be fatal in the foreseeable future. NMFS does not forecast how the entanglement or injury may increase the whale's susceptibility to further injury. Due to this approach, the data presented in this report likely underestimate rates of serious injury due to entanglement (Waring et al., 2003).

On January 24, 2012, NMFS solicited public comments on draft revisions to the guidelines for preparing stock assessment reports (SARs). One of the proposed revisions is to specify that SARs include a summary of all human-caused mortality and serious injury including information on all sources of mortality and serious injury. Additionally, the revised guidelines state that a summary of mortality and serious injury incidental to U.S. commercial fisheries should be presented in a table, while mortality and serious injury from other sources should be clearly distinguished from U.S. commercial fishery-related mortality (77 FR 3450).

Another source of uncertainty in entanglement data is the size and variability of the detection effort (i.e., the number of people qualified and willing to report a whale entanglement). The number of people on the water and actively reporting whale entanglements also varies from year to year. Compared to the vastness of the Atlantic Ocean, the number of people on the water at any point in time who are qualified and willing to report a whale entanglement is small. As a result, some percentage of whale entanglements likely go unnoted. The limitations of the detection effort also hinder the development of conclusions regarding changes in the number of entanglements over time.

[23] The serious injury determinations are most susceptible to revision. There are instances in which an entangled or partially disentangled whale was re-sighted later free of gear. The reverse may also be true: a whale initially seeming in good condition after being entangled is later re-sighted and found to have been seriously injured by the event.

[24] Entanglements of juvenile whales are typically considered serious injuries because the constriction on the animal is likely to become increasingly harmful as the whale grows.

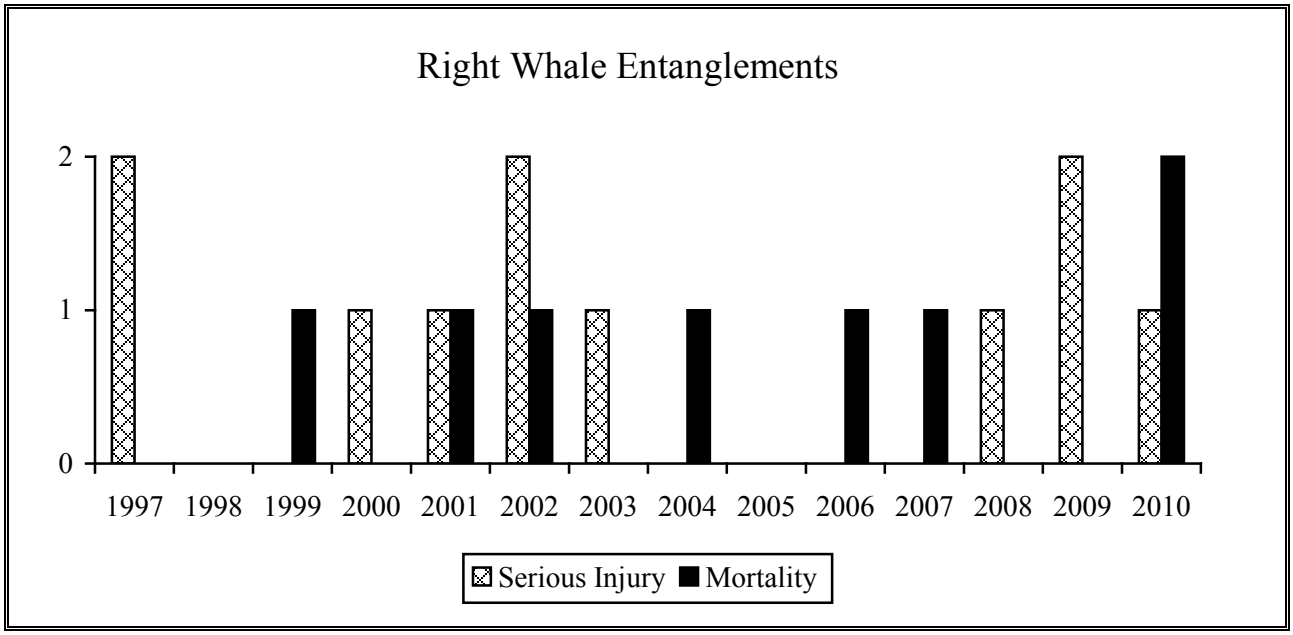
2.3.2.2 Right Whale Entanglements

From 2006 through 2010, an estimated average of 1.8 right whales per year (1.6 in U.S waters; 0.2 in Canadian waters) were seriously injured or killed as a result of entanglement or fishery interactions (Waring et al., 2013). In an analysis of the scarification of right whales, a total of 61.6 percent of the whales bore evidence of entanglements with fishing gear (Hamilton et al., 1998). Further research using the *North Atlantic Right Whale Catalogue* has indicated that between 10 and 28 percent of right whales are involved in entanglements each year (Knowlton et al., 2002). However, most right whales are eventually able to free themselves, leaving them with scars (Knowlton et al., 2002). Entanglement records maintained by NMFS Northeast Regional Office included at least 85 confirmed right whale entanglements from 1990 through 2009, including right whales in weirs, entangled in gillnets, and trailing line and buoys (Waring et al., 2012). Because whales often free themselves of gear following an entanglement event, scarring may be a better indicator of fisheries interactions than entanglement records. In an analysis of the scarification of right whales, 519 of 626 (82.9%) whales examined during 1980-2009 were scarred at least once by fishing gear (Knowlton et al. 2012). Further research using the *North Atlantic Right Whale Catalogue* has indicated that between 8.6% to 33,6% of right whales aquire new scars annually (Knowlton et al. 2012). In six records of right whales that were entangled in groundfish gillnet gear in the Bay of Fundy and Gulf of Maine between 1975 and 1990, the whales were either released or escaped on their own, although several whales were observed carrying net or line fragments. A right whale mother and calf were released alive from a herring weir in the Bay of Fundy in 1976.

Between 1970 and 1999, a total of 45 right whale mortalities were recorded (International Whaling Commission 1999; Knowlton and Kraus 2001; Glass et al. 2009). Of these, 13 (28.9%) were neonates that were believed to have died from perinatal complications or other natural causes. Of the remainder, 16 (35.6%) resulted from ship strikes, 3 (6.7%) were related to entanglement in fishing gear (in two cases lobster gear, and one gillnet gear), and 13 (28.9%) were of unknown cause. Between 2005 and 2009, there were a total of 29 confirmed North Atlantic right whale entanglements along the US east coast and adjacent Canadian maritimes. Of these, there were 20 confirmed mortalities, two of which were attributed to entanglements (Henry et al., 2011). There were an additional three confirmed entanglement serious injuries.

Exhibit 2-9 presents a summary of estimated right whale entanglements from 1997 through 2010. The data only include cases in which entanglement was determined to be the primary source of the injury (Waring et al., 2013). The data demonstrate that right whales are becoming entangled in fishing gear and may be seriously injured or killed as a result of that entanglement. Due to the small sample size and the variability in entanglement reports resulting from annual differences in detection effort, the data do not support conclusions indicating historical trends in right whale entanglements.

Exhibit 2-9



An analysis of the gear involved in right and humpback whale entanglements (Johnson et al., 2005) investigated 31 right whale entanglement events in the U.S. and Canada (involving 29 individuals) during the period from 1993 through 2002. This analysis focused only on entanglement events for which gear was recovered and/or identified by gear specialists or other reliable sources, and events in which the point of gear attachment could be determined. Johnson et al. (2005) documented nine right whale entanglement events in which an animal died or was deemed potentially dead. Gear recovered from these entanglements was identified as or consistent with lobster trap/pot in two cases, sink gillnet in one case, Danish seine in one case, and unidentified or unknown in two cases (in these two cases, only rope was recovered).[25] The outcomes of the 29 right whales involved in the 31 entanglement events are summarized in Exhibit 2-10. Three of the four known right whale deaths listed in Exhibit 2-10 are included in Exhibit 2-9.

[25] The other three entanglement cases involved right whale #2212, which is considered potentially dead. (Johnson et al., 2005) Because this whale was involved in three separate documented entanglements, its outcome could not be attributed to any one particular event.

Exhibit 2-10

OUTCOME OF RIGHT WHALE ENTANGLEMENTS INCLUDED IN GEAR ANALYSIS (1993 THROUGH 2002)

Dead	4
Potentially dead[1]	5
Alive and gear-free	12
Alive and entangled	6
Unknown	2
TOTAL	29

Note:
1 "Potentially dead" applies to identified right whales, and is based largely on a New England Aquarium visual assessment of the health of right whales (Pettis et al., 2004).

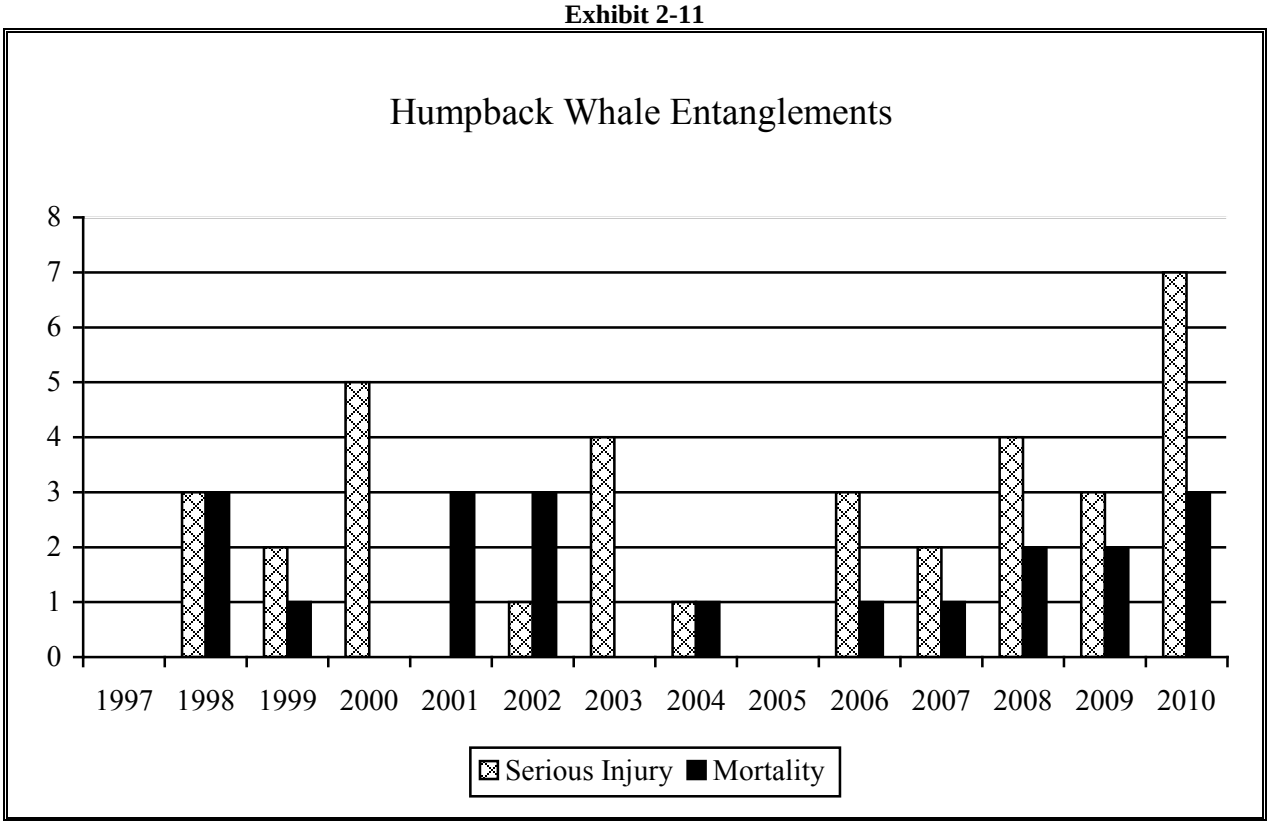
Source: Johnson et al. (2005).

2.3.2.3 Humpback Whale Entanglements

For the period 2006 through 2010, an estimated average of 5.8 Gulf of Maine stock humpback whales per year (5.2 in U.S waters; 0.6 in Canadian waters) were seriously injured or killed as a result of incidental fishery interactions (i.e., entanglements) (Waring et al., 2013). In contrast to stock assessment reports before 2007, these averages include humpback mortalities and serious injuries that occurred in the southeastern and Mid-Atlantic states that could not be confirmed as involving members of the Gulf of Maine stock. In past reports, only events involving whales confirmed to be members of the Gulf of Maine stock were counted against PBR. Starting in the 2007 report, it was assumed that whales were from the Gulf of Maine unless they were identified as members of another stock (Waring et al., 2012). A study of entanglement-related scarring on the caudal peduncle of 134 individual humpback whales from the Gulf of Maine stock suggests that between 48 percent and 65 percent of whales had experienced entanglements (Robbins and Mattila, 2001).

Exhibit 2-11 summarizes western North Atlantic humpback whale entanglements from 1997 to 2010. Due to the small sample size and the variability in entanglement reports (because of variation in detection effort), the data do not support conclusions indicating historical trends in humpback whale entanglements.

Exhibit 2-11



An analysis of the gear involved in right and humpback whale entanglements in the U.S. and Canada (Johnson et al., 2005) investigated 30 humpback whale entanglements during the period from 1997 through 2002. This analysis focused only on entanglement events for which gear was recovered and/or identified by gear specialists or other reliable sources, and events in which the point of gear attachment could be determined. Of the three entangled humpback whales known to have died, two of the necropsies revealed entanglements in anchored gillnet gear. The third animal washed up dead two days after it was disentangled from inshore lobster gear. Exhibit 2-12 summarizes the outcomes of the 30 entanglements.

Exhibit 2-12

OUTCOME OF HUMPBACK WHALE ENTANGLEMENTS INCLUDED IN GEAR ANALYSIS (1997 THROUGH 2002)

Dead	3
Alive and gear-free	20
Alive and entangled	5
Unknown	2
TOTAL	30

Note: An outcome of "potentially dead" was not used for humpback whales because a health assessment technique similar to the one for right whales (Pettis et al., 2004) does not exist.

Source: Johnson et al. (2005).

2.3.2.4 Fin Whale Entanglements

A review of NMFS records from 2006 through 2010 yielded an average of 2 reported fin whale serious injuries or mortalities per year (1.8 in U.S. waters; 0.2 in Canadian waters) resulting from fishery interactions or entanglements (Waring et al., 2013).

Exhibit 2-13 summarizes fin whale entanglements from 1997 through 2010. No confirmed fishery-related mortalities or serious injuries of fin whales have been reported in the NMFS Sea Sampling database. A review of records of stranded, floating or injured fin whales for the period 2006 through 2010 on file at NMFS found two records with substantial evidence of fishery interactions causing mortality and two records resulting in serious injury, which results in an annual rate of serious injury and mortality of 2 fin whales from fishery interactions (Waring et al., 2013).

Exhibit 2-13

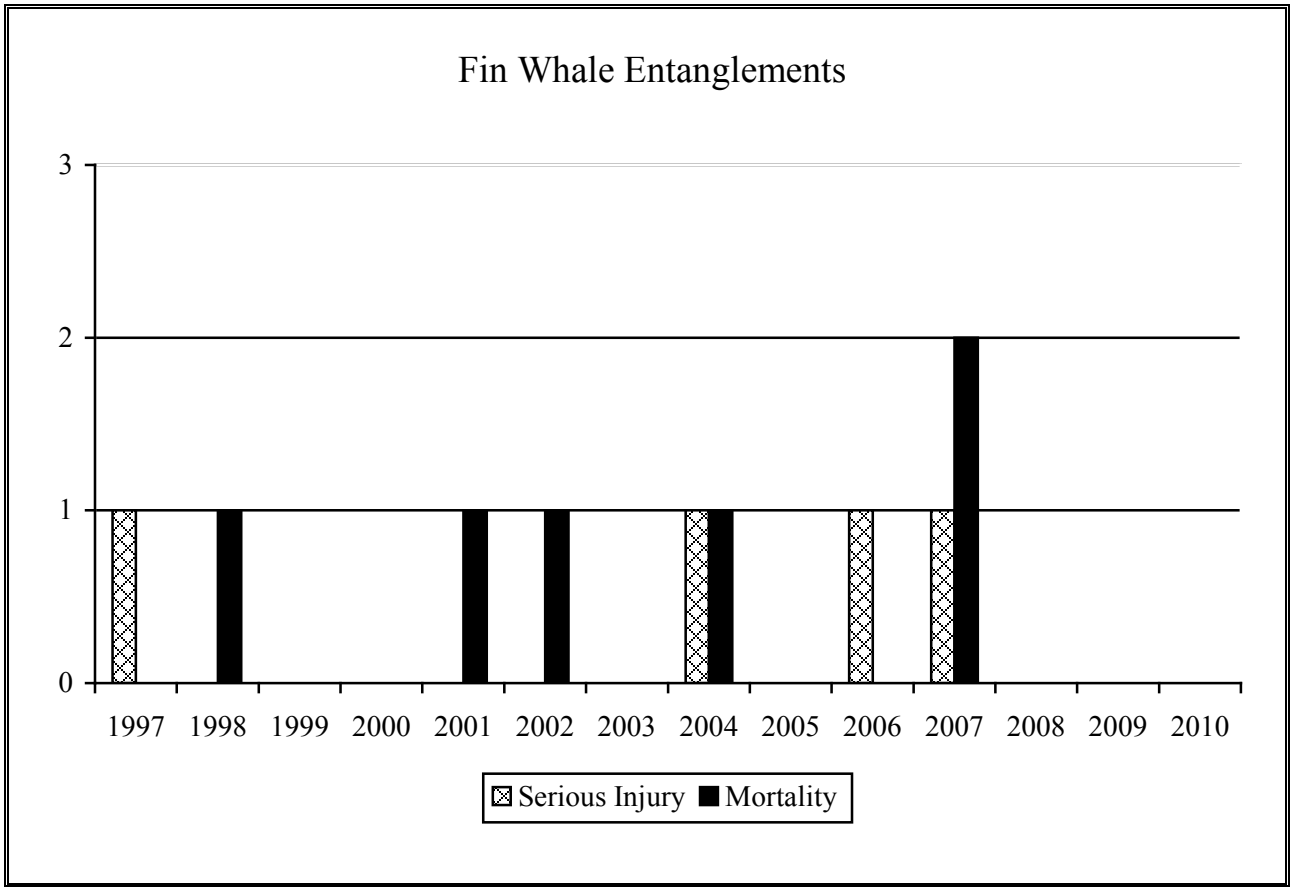


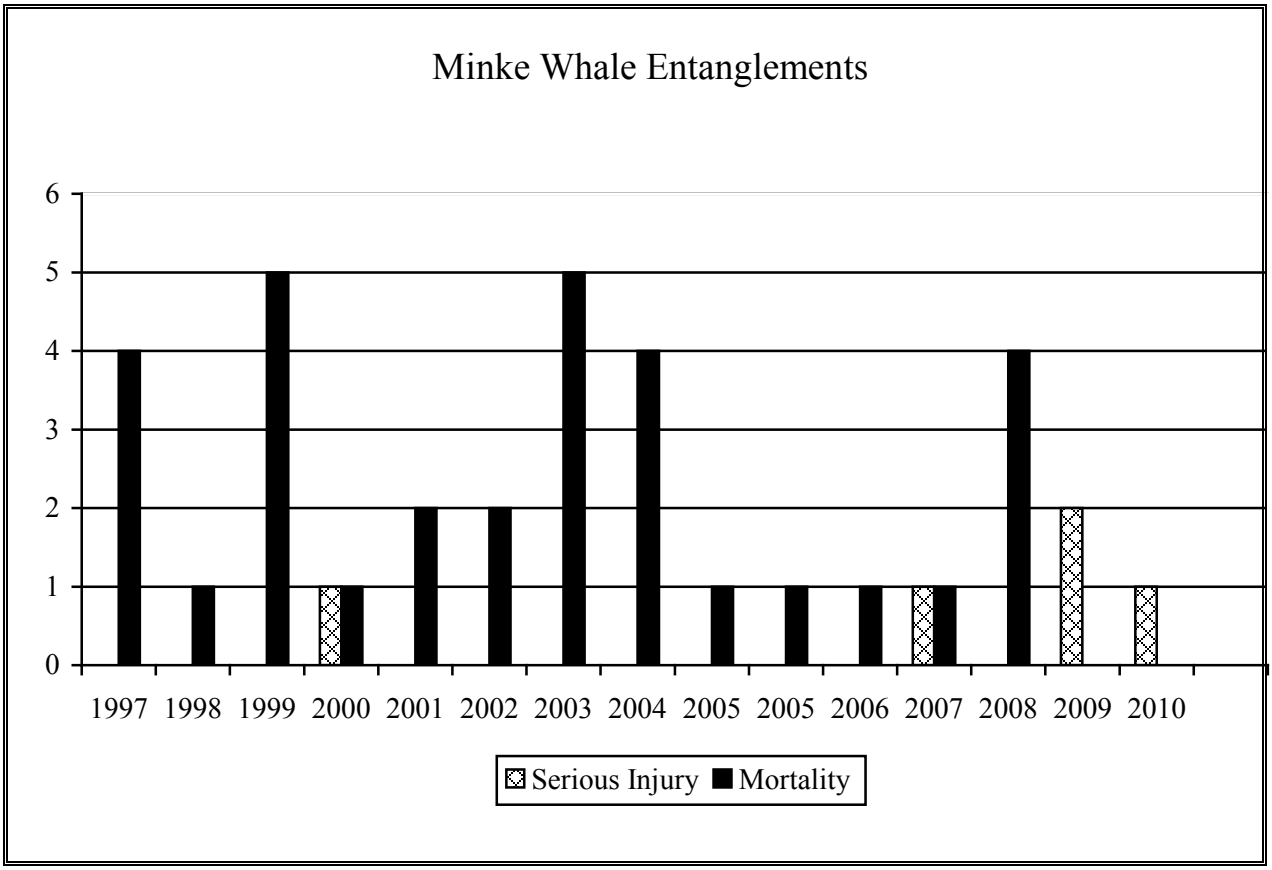
Exhibit 2-13 demonstrates that fin whales are becoming entangled in fishing gear, and may be seriously injured or killed as a result of that entanglement. Due to the small sample size and the variability in entanglement reports (because of differences in detection effort), the data do not support conclusions indicating historical trends in fin whale entanglements.

2.3.2.5 Minke Whale Entanglements

It is difficult to associate minke whale entanglements with specific fisheries. Over the period 2006 through 2010, there was an average of 2.6 mortalities and serious injuries from observed in fisheries, 1 per year from U.S. fisheries using stranding and entanglement data and 2 from Canadian fisheries using stranding and entanglement data (Waring et al., 2013). The strandings and entanglement database, maintained by the Northeast Regional Office/NMFS, include 36 records of minke whales within U.S. waters from 1975-1992. The gear includes unspecified fishing nets, unspecified cables or lines, fish traps, weirs, seines, gillnets and lobster gear. The strandings and entanglement database reported 7 minke whale mortalities and serious injuries that were attributed to the Northeast/Mid-Atlantic Lobster Trap Pot fishery during 1990 to 1994.

Exhibit 2-14 summarizes minke whale entanglements from 1997 to 2010. The graph demonstrates that minke whales are becoming entangled in fishing gear, and may be seriously injured or killed as a result of that entanglement. Due to the small sample size and the variability in entanglement reports (because of variation in detection effort), the data do not support conclusions indicating historical trends in minke whale entanglements.

Exhibit 2-14



2.3.2.6 Summary of Recent Entanglements: Right, Humpback, Fin, and Minke Whales

Exhibit 2-15 summarizes all known serious injury entanglements of right, humpback, fin, and minke whales from 1997 through 2010, the most recent year that data is available for all species. Humpback whales account for the greatest number of serious injury entanglements (35), followed by right whales (11); minke whales account for five, and fin whales account for four.

Exhibit 2-15

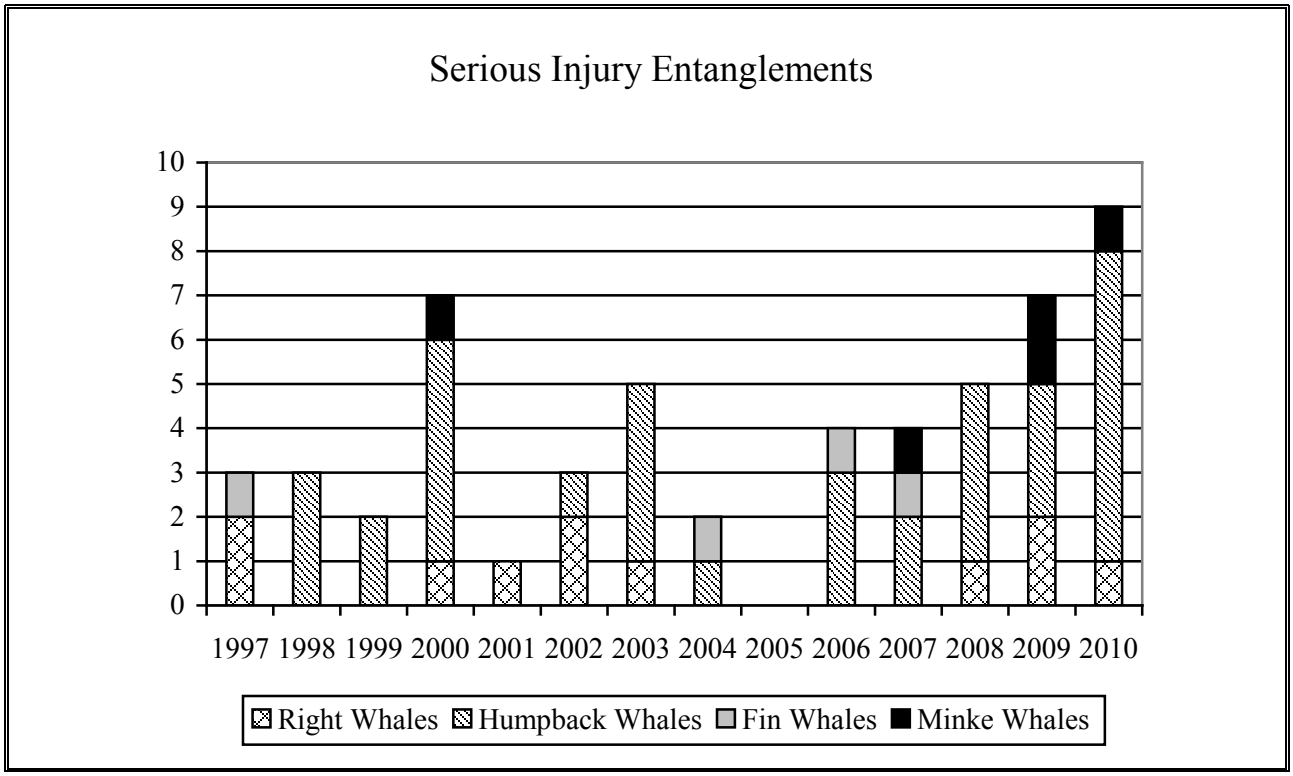


Exhibit 2-16 presents available data on fatal entanglements of Atlantic large whales from 1997 through 2010, the most recent year that data is available for all species. Minke whales account for the most known entanglement mortalities (31), followed by humpback whales (20), then right whales (8) and fin whales account for six.

Exhibit 2-16

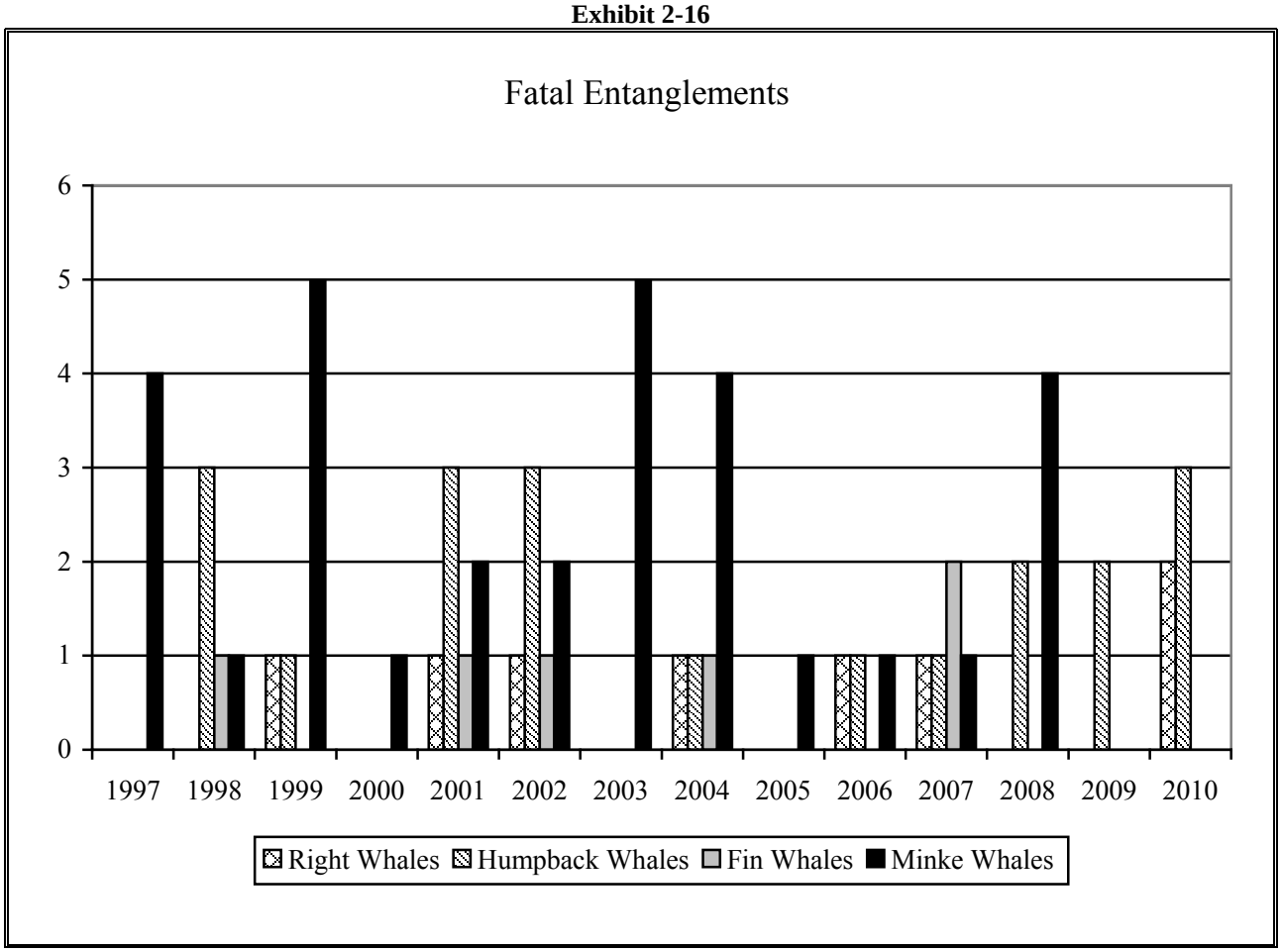


Exhibit 2-17 presents average annual rates of human-caused serious injury and mortality to Atlantic large whales for the period 2006 through 2010 (Waring et al., 2013). For Atlantic large whales, approximately 62 percent (right whales) to 100 percent (humpback whales) of human-caused serious injury and mortality was first reported in U.S. waters. Interactions with fishing gear accounted for about 25 percent (right whales) to 92 percent (minke whales) of the human-caused serious injury and mortality reported in U.S. waters.

Exhibit 2-17

AVERAGE ANNUAL HUMAN-CAUSED SERIOUS INJURY AND MORTALITY 2006 THROUGH 2010

	Right Whale	Humpback Whale	Fin Whale	Minke Whale
U.S. and Canadian waters	2.6 whales	5.0 whales	2.6 whales	5.9 whales
U.S. waters only	1.6 whales	5.0 whales	2.0 whales	4.7 whales
U.S. waters only, as a percent of U.S. and Canadian waters	61.5 percent	100 percent	76.9 percent	79.7 percent
Resulting from interactions with fishing gear, U.S. waters only	0.4 whales	3.6 whales	0.6 whales	4.3 whales
Resulting from interactions with fishing gear, as a percent of all human-caused serious injury and mortality, U.S. waters only	25 percent	72 percent	30 percent	91.5 percent

[1] n.a. = Not available.
Source: Henry et al. (2011).

Exhibit 2-17 also shows that for the years 2006 through 2010, the annual average level of human-caused serious injury and mortality from U.S. fisheries interactions for right and humpback whales exceeded the PBR levels shown in Exhibit 2-18.

Exhibit 2-18

POTENTIAL BIOLOGICAL REMOVAL (PBR) LEVELS

Right Whale	Humpback Whale	Fin Whale	Minke Whale
0.9 whales	2.7 whales	5.6 whales	162 whales

Source: Waring et al. (2013).

2.3.3 Purpose and Need for Action

The most recent regulations under the current ALWTRP, including the broad based prohibition on floating groundline, became fully effective April 2009. Entanglements first observed after January 1, 2010, may have occurred after most of the recent revisions to the ALWTRP went into effect.[26] Exhibit 2-19 summarizes the data on large whale entanglements observed between January 1, 2010, through December 31, 2011 (the extent of finalized reports as of December 31, 2013). Serious injury and mortality determinations have not been made for these entanglements as of this time.

[26] The whales for which sighting history data are available were not observed free of gear between January 1 and the date that they were reported to be entangled; therefore, these data cannot confirm that the entanglements occurred after the implementation of current ALWTRP requirements. Entanglements first observed after January 1, 2010, may have occurred prior to that date, and thus prior to implementation of the new provisions.

Exhibit 2-19

Preliminary Entanglement Summary
United States and Canadian Waters
2010 and 2011

	Reports of Individual Animals with Previously Unreported Entanglements	
	2010	**2011**
Right whale	5	11
Humpback whale	16	21
Fin whale	0	1
Minke whale	3	6
Unknown whale	**1**	**0**
TOTAL	**25**	**39**

Note:
The whales for which sighting history data are available were not observed free of gear between January 1 and the date that they were reported to be entangled; therefore, these data cannot confirm that the entanglements occurred after the implementation of current ALWTRP requirements. Entanglements first observed after January 1, 2010, may have occurred prior to that date, and thus prior to implementation of the new provisions.

Due to the continuing risk of serious injury and mortality of large whales since the most recent revisions of the ALWTRP have gone into effect, NMFS believes additional modifications to the ALWTRP are needed to meet the goals of the MMPA and the ESA. In addition, as stated previously, the ALWTRP acknowledged in 2003 that there remained risk from both the vertical and groundline components of gear.

The purpose of this action is to further reduce the risk of large whale entanglement in fishing gear and to develop better management programs to aid in this reduction. The most recent rulemaking focused on the groundline, leaving the need, which is to be addressed by this action, to take additional action to further reduce risk from vertical line and to support a better understanding about the nature of entanglements. In accordance with the MMPA, NMFS' goal for each of the three strategic large whale species (right, humpback, and fin) is to reduce incidental mortalities and serious injuries attributable to interactions with commercial fisheries to levels that do not exceed the Potential Biological Removal (PBR) and Zero Mortality Rate Goal (ZMRG) level for each stock. On the basis of the data presented above, NMFS is proposing further modification of the ALWTRP.

In developing proposed changes to the ALWTRP, NMFS has evaluated a number of alternatives. These alternatives seek to reduce the risk of large whale entanglement by measures such as prohibiting the use of vertical lines in certain areas at certain times of the year, reducing or capping the number of vertical lines in certain areas at certain times of the year, mandating certain gear configurations, and requiring gear marking. These changes are designed to address ongoing entanglement issues, especially those involving vertical line. NMFS believes that addressing the risk associated with vertical line by reducing the number of vertical lines,

particularly in areas of higher whale density, will reduce serious injury and mortality of large whales due to incidental entanglement in commercial fishing gear.

An analysis of fishing gear involved in right and humpback whale entanglements confirms that any line rising into the water column presents an entanglement risk to large whales (Johnson et al., 2005). The study includes 45 right and humpback whale entanglement events, reported in both U.S. and Canadian waters, from which gear was recovered and/or identified.

The Johnson et al. (2005) analysis identified four parts of fixed fishing gear that were involved in entanglements: buoy line, groundline, floatline, and surface system lines.[27] Where the part of the gear could be identified for both species combined, 56 percent (14 out of 25) of the animals were entangled in buoy line (seven of each species), 28 percent (seven out of 25) were entangled in groundline (four right and three humpback whales), 16 percent (four out of 25) were entangled in gillnet floatline (all humpback whales), and four percent (one out of 25) were entangled in surface system line (a right whale) (source Johnson et al., 2005).[28] Note that the sum of these percentages exceeds 100 percent because two animals (one of each species) were entangled in both buoy line and groundline, making it difficult to determine which part of the gear the whales encountered first.[29] It is important to note that when considering the above analysis, although portions of the gear (e.g., buoy line and groundline) were identified, without documentation of the events leading up to the entanglement, it is difficult to compare the relative risks associated with different parts of the gear. The reasons for this are elaborated below.

A large whale entanglement that is reported by an observer may not fully reflect the history of the entanglement (i.e., the exact point of contact and where the gear was located on the animal immediately after it became entangled, what part of the gear was involved, and whether any gear was shed by the whale prior to reporting). Scarring data for both right and humpback whales indicate that in many cases, these animals become briefly entangled in line or another part of the gear, which leaves minor scars. When a large whale encounters gear, it is often

[27] Buoy line connects the gear at the bottom to the surface system. Groundline in trap/pot gear connects traps/pots to each other to form trawls; in gillnet gear, groundline connects a gillnet or gillnet bridle to an anchor or buoy line. Floatline is the portion of gillnet gear from which the mesh portion of the net is hung. The surface system includes buoys and high-flyers, as well as the lines that connect these components to the buoy line.

[28] NMFS gear experts rely on a variety of factors to help them identify the components of gear involved in an entanglement, including the presence of traps/pots, nets, buoys, and gangions (i.e., rope that attaches traps/pots to the groundline), as well as occasional interviews with gear owners. Interviews provide important information about where, when, and how the gear was set and possibly when the gear was lost. NMFS gear experts may also rely on high-quality photographic documentation of the entanglement.

[29] The trap/pot gear that entangled the humpback whale consisted of floating groundline as well as buoy line made of both floating and sinking line spliced together. The NMFS gear research team reports that the majority of lobster trap/pot and gillnet fishermen use buoy line that consists of two-thirds sinking line and one-third floating line; the floating line is located at the lower end of the buoy line to prevent chafing on the seafloor. This humpback whale's entanglement involved gear originating from the mouth, and the whale may have encountered either the buoy line or the groundline first. Without documentation of the events that led to the entanglement, it is impossible to determine where the whale encountered the gear and whether other body parts may have been involved before the entanglement was reported. The composition of the buoy line and groundline involved in the entanglement of the right whale was not determined; however, the gear involved was identified as crab trap/pot gear. This whale's entanglement involved the tail. As two gear components were involved, it is difficult to determine which part of the gear the whale encountered first or whether other body parts were involved before the entanglement was reported.

powerful enough to carry large amounts of the gear away with it (Clapham et al., 2001) and any gear that trails from a whale has the potential to become caught on other gear. If this occurs before the whale is reported entangled, it is extremely difficult to determine which part of the gear the whale encountered first. Entangling gear can also shift positions on a whale, further complicating an effective analysis of the nature of the entanglement. In some cases, not all entangling gear can be removed from an animal during disentanglement. In others, large whales may shed some of the gear involved before the entanglement is reported.

Based on the above information, NMFS believes that all parts of fixed gear create entanglement risk because all have been identified as entangling large whales. However, at this time, determining which part of fixed gear creates the most entanglement risk for large whales is difficult due to the uncertainties associated with entanglements, as well as unknown biases associated with reporting effort and the lack of information about the types and amounts of gear being used (Johnson et al., 2005). For example, buoy line may be reported more frequently at sea than groundline, since it is easier to recognize when a buoy or high-flyer is present. Groundline, on the other hand, does not have a distinguishing characteristic that would allow it to be identified without removing it from an entangled animal and analyzing it (Johnson et al., 2005). Therefore, vertical line (buoy and surface system line) may only seem to create more of an entanglement risk than ground line, when in fact it is difficult to quantify and compare the risks associated with each part of the gear. In some cases, it is still impossible to determine the gear part even when the gear is recovered and/or identified.[30] Despite gear recovery and/or identification, 44 percent (20 out of the total 45) of the right and humpback whale entanglement events analyzed involved an unknown part of the gear (source Johnson et al., 2005). Currently, the only definitive way to assess the nature of entanglements is through gear removal, as it is difficult to identify a line's origin through photographs alone (Johnson et al., 2005). However, all of the caveats noted above must be considered when gear has been recovered and an assessment is in progress.

A better scientific understanding about the nature of entanglements, specifically the gear components involved (e.g., buoy line), would help NMFS to develop better management programs and reduce the risk of serious injury and mortality of large whales due to incidental interactions with commercial fisheries. Therefore, NMFS is also proposing to expand gear marking requirements for fisheries that are subject to ALWTRP regulations. This information may provide valuable insight concerning where, when, and how the entangling gear was set.

[30] The NMFS gear research team usually identifies groundline based on the presence of a trap/pot and/or other factors, such as the presence of gangions that are spaced at intervals that would suggest that the line is groundline.

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Appendix 2-A

WATERS CURRENTLY EXEMPTED FROM ALWTRP

ALWTRP regulations apply to all U.S. waters in the Atlantic except for the areas described below (and on the pages to follow).

Exempted Waters:

- Regulations do not apply to waters landward of the 72 COLREGS lines in ALWTRP-managed waters from **Maine through Florida**, with the exception of the COLREGS lines for Casco Bay (**Maine**), Portsmouth Harbor (**New Hampshire**), Gardiners Bay and Long Island Sound (**New York**), and the state of **Massachusetts**;
- Regulations do not apply to waters landward of the first bridge over any embayment, harbor, or inlet in **Massachusetts.**

Other Exempted Waters:

- Regulations do not apply to waters of **New Hampshire** landward of the following line:
  - » A line from 42°53.691′ N. lat., 70°48.516′ W. long. to 42°53.516′ N. lat., 70°48.748′ W. long. (Hampton Harbor).
  - » A line from 42°59.986′ N. lat., 70°44.654′ W. long. to 42°59.956′ N., 70°44.737′ W. long. (Rye Harbor).
- Regulations do not apply to waters of **Rhode Island** landward of the following line:
  - » A line from 41°22.441′ N. lat., 71°30.781′ W. long. to 41°22.447′ N lat., 71°30.893′ W. long.(Pt. Judith Pond Inlet).
  - » A line from 41°21.310′ N. lat., 71°38.300′ W. long. to 41°21.300′ N. lat., 71°38.330′ W. long. (Ninigret Pond Inlet).
  - » A line from 41°19.875′ N. lat., 71°43.061′ W. long. to 41°19.879′ N. lat., 71°43.115′ W. long.(Quonochontaug Pond Inlet).
  - » A line from 41°19.660′ N. lat., 71°45.750′ W. long. to 41°19.660′ N. lat., 71°45.780′ W. long.(Weekapaug Pond Inlet).
- Regulations do not apply to waters of New York landward of the following line:
  - » A line that follows the territorial sea baseline through Block Island Sound (Watch Hill Point, RI, to Montauk Point, NY).
- Regulations do not apply to waters of South Carolina landward of the following line:
  - » A line from 32°34.717′ N. lat., 80°08.565′ W. long. to 32°34.686′ N. lat., 8 0°08.642′ W. long. (Captain Sams Inlet).

Gear Modification Exemptions >280fa:

- Fisheries are exempt from the requirement to have groundlines composed of sinking line if their groundline is at a depth equal to or greater than 280 fathoms (1,680 ft; 512.1m).
- Anchored gillnet fisheries are exempt from the requirement to install weak links in netpanel(s) and to anchor each end of the net string if the float line is at a depth equal to or greater than 280 fathoms (1,680 ft; 512.1m).

Exhibit 2-A1: EXEMPTION LINES FOR COASTAL WATERS OF RI, CT, AND NY

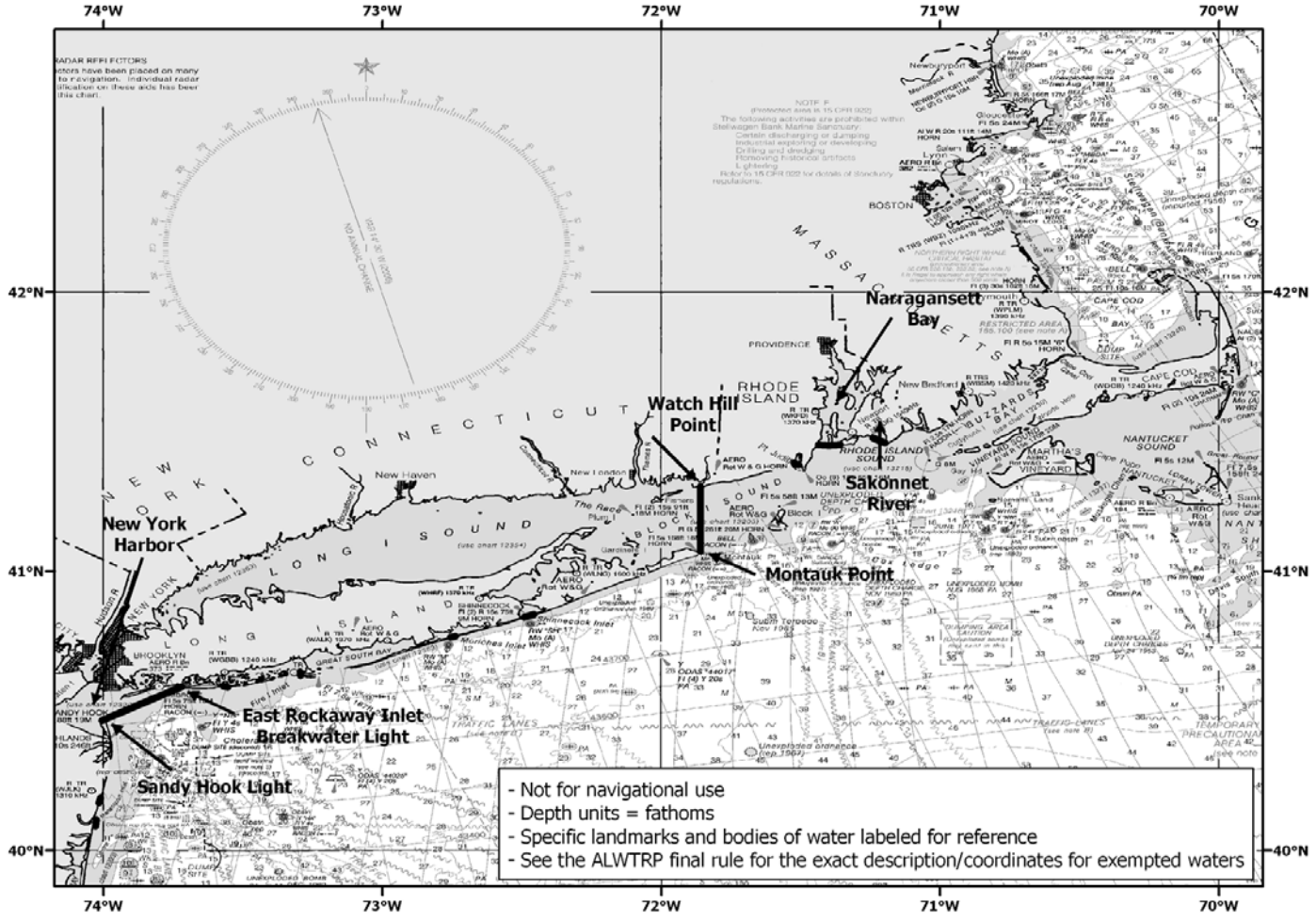


Exhibit 2A-2: EXEMPTION LINES FOR ME

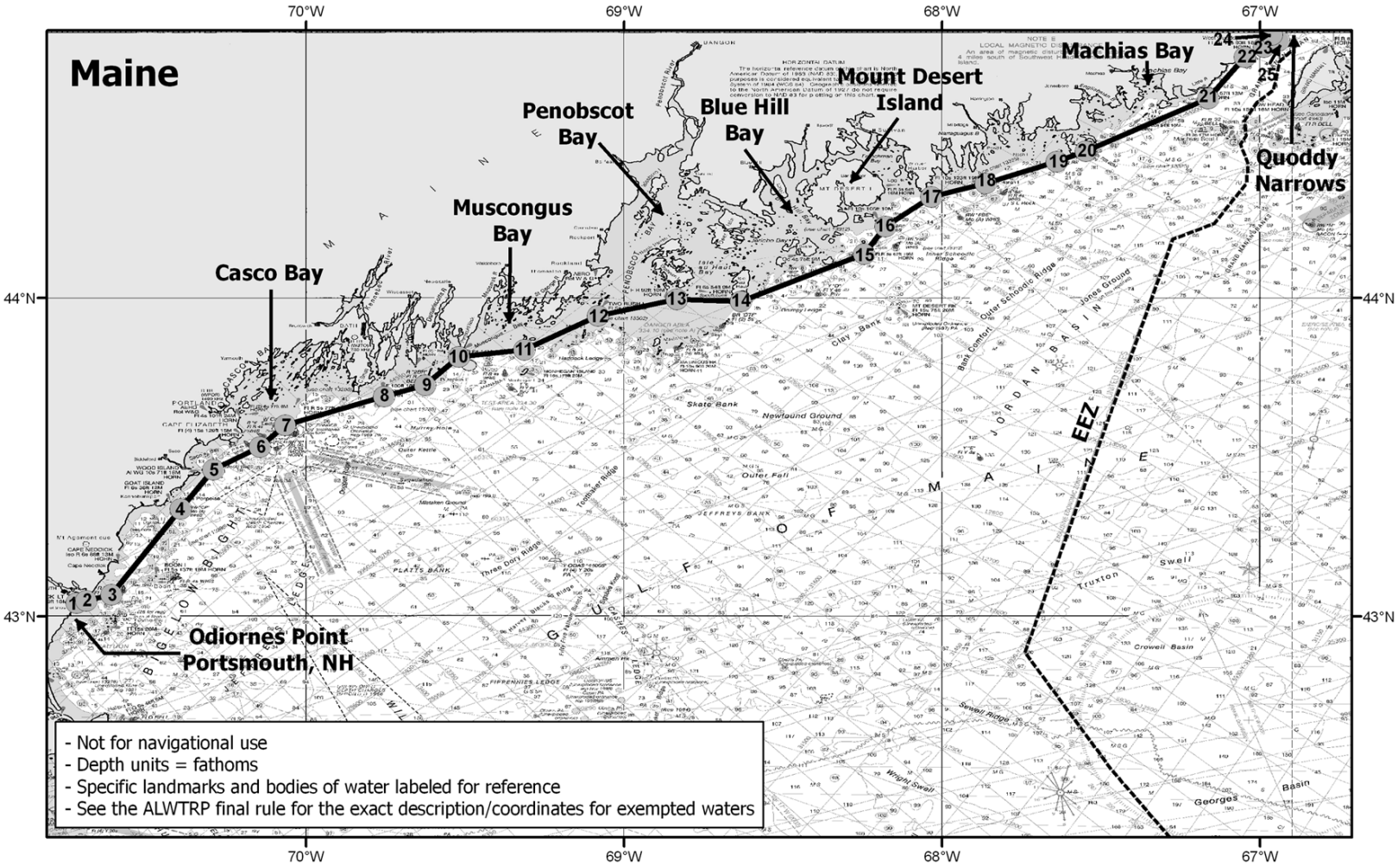


Exhibit 2A-3: EXEMPTION LINE FOR CHESAPEAKE BAY

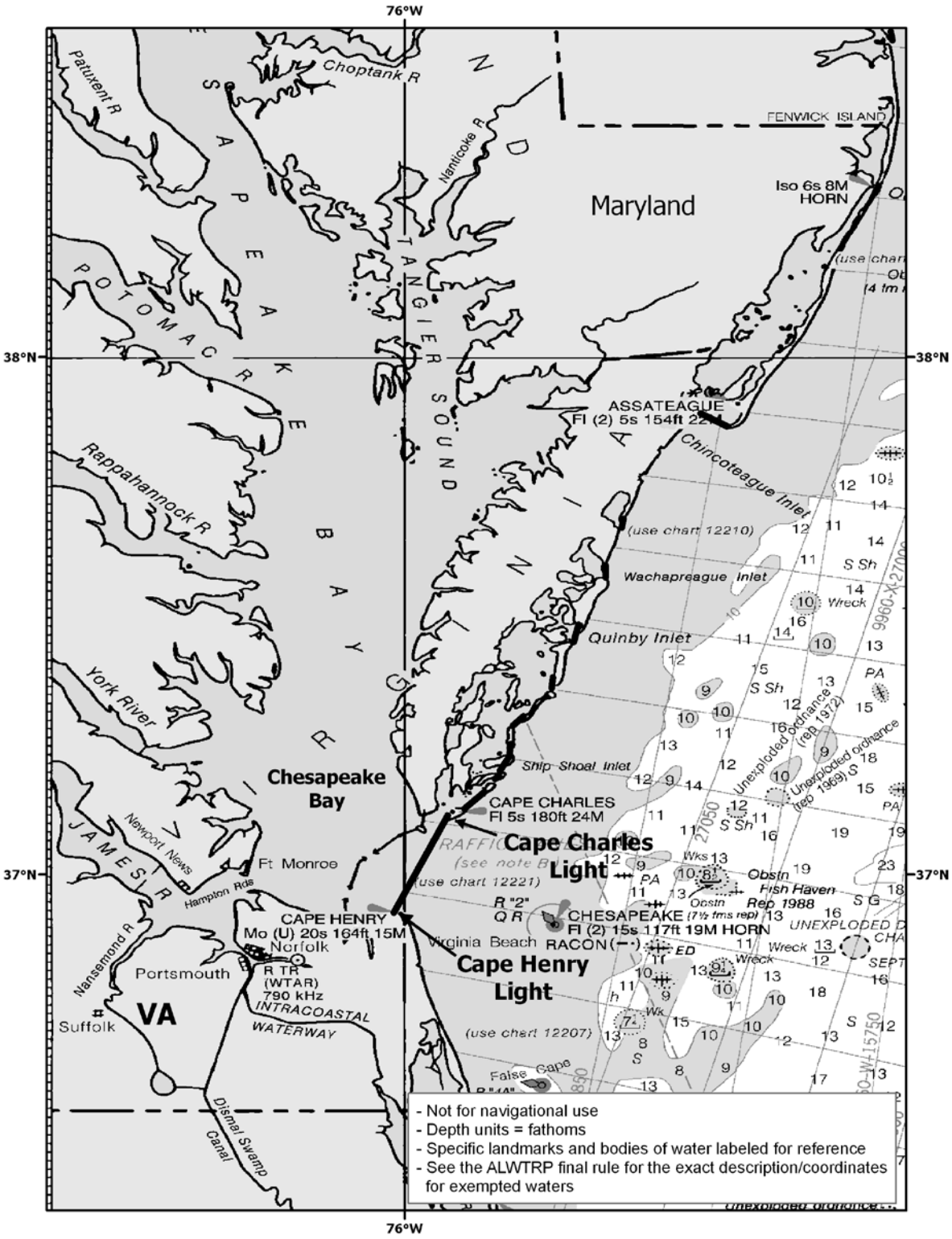
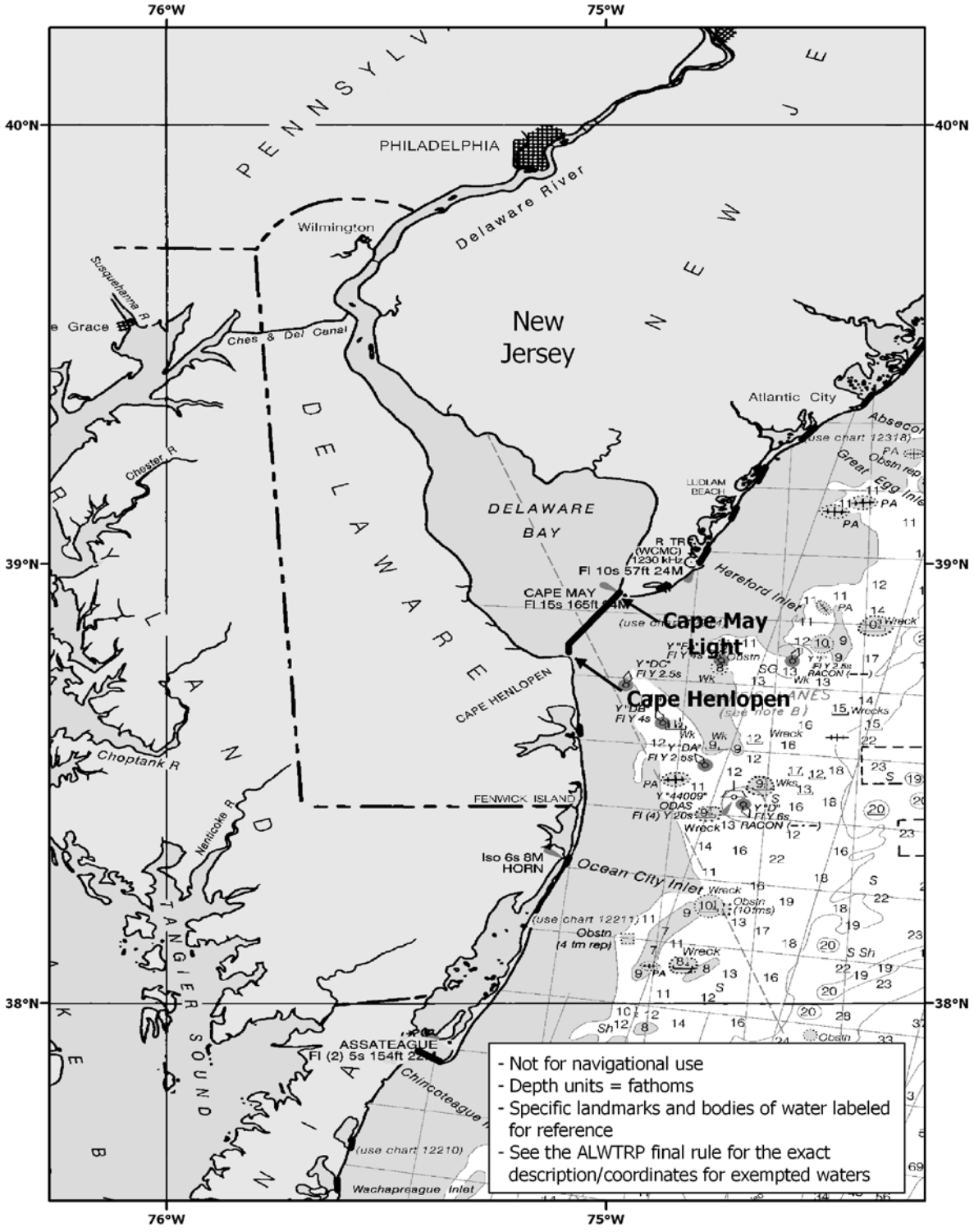


Exhibit 2A-4: EXEMPTION LINE FOR DELAWARE BAY



REGULATORY ALTERNATIVES CHAPTER 3

The Atlantic Large Whale Take Reduction Plan (ALWTRP) includes a combination of fishing gear modifications and time/area closures to reduce the risk that whales will be killed or seriously injured as a result of entanglement in commercial fishing gear. The nature of the gear modification requirements varies by location and time of year, maximizing reduction in entanglement risk based on whale movements. NMFS complements these gear modification requirements with prohibitions on fishing at times and in places where whale aggregations are greatest, and therefore entanglement risk may be particularly high.

NMFS is considering various alternatives for modifying existing ALWTRP requirements. The alternatives under consideration seek to reduce large whale entanglement by increased traps per trawl, requiring gear marking and the use of weak links and/or vertical lines of lower breaking strength. These changes are designed to address ongoing right, humpback, and fin whale entanglements resulting in serious injury or mortality. The measures under consideration are designed to address entanglement risk posed by fisheries in U.S. waters; however, NMFS recognizes that entanglement risks occur throughout the range of these species. NMFS will continue to work with the Government of Canada toward the development of similar protective measures for large whales in Canadian waters.

NMFS has identified a preferred alternative (Alternative 6 Preferred) from those considered. Below, we describe the regulatory alternatives under consideration (Section 3.1). We then discuss the alternatives that NMFS has considered but rejected (Section 3.2).

3.1 ALTERNATIVES CONSIDERED

NMFS has identified six regulatory alternatives for consideration and has identified a preferred alternative (Alternative 6 Preferred) from those considered. The requirements under these alternatives supplement existing ALWTRP requirements, unless otherwise noted. The alternatives introduce new gear restrictions for fisheries already included under the ALWTRP. NMFS also proposes adding new gear marking requirements and making regulatory language changes that would apply across all the alternatives, with the exception of the No Action Alternative (Alternative 1).

The alternatives examined in this FEIS are the product of extensive outreach conducted by NMFS. In response to the continued risk of serious injury or mortality of large whales from entanglement in commercial fishing gear, NMFS determined that additional modifications to the ALWTRP were warranted. Therefore, the ALWTRT was asked by NMFS to consider and develop additional options for addressing incidental interactions between commercial fisheries and large whales. Particular emphasis was placed on those options designed to reduce the potential for entanglements and minimize adverse impacts if entanglements occur.

In 2009, the ALWTRT agreed on a schedule to develop conservation measures for reducing the risk of serious injury and mortality of large whales that become entangled in vertical lines. As provided in the schedule, NMFS committed to publishing a final rule to address vertical line entanglement by 2014. Unlike the broad-scale management approach taken to address entanglement risks associated with groundlines, the approach for the vertical line rulemaking will focus on reducing the risk of vertical line entanglements in finer-scale high impact areas. Using fishing gear characterization data and whale sightings per unit effort (SPUE) data, NMFS developed a model to determine the co-occurrence of fishing gear density and whale density to serve as a guide in the identification of these high risk areas.

NMFS convened a meeting of the ALWTRT's Northeast Subgroup and the Mid-Atlantic/Southeast Subgroup in November 2010 and April 2011, respectively. The subgroups reviewed the co-occurrence model and discussed its implications toward the overall vertical line management strategy. The ALWTRT agreed that NMFS should use the model to develop suites of conservation measures that would ultimately serve as options for the ALWTRT to consider when identifying management alternatives for the EIS. The conservation measures would address vertical line fishery interactions with large whales by reducing the potential for entanglements and minimizing adverse effects if entanglements occur. The results of the model showed that the trap/pot industry accounts for a larger number of vertical line in the water column than the gillnet industry. Therefore the proposed gear modifications and setting requirements target just the trap/pot industry; although, the proposed gear marking scheme would affect both industries.

On June 14, 2011, NMFS published a Notice of Intent (NOI) in the *Federal Register* to announce the agency's intent to prepare an Environmental Impact Statement (EIS) (76 FR 34654). In the NOI, NMFS requested comments and announced multiple public scoping meetings along the east coast to solicit comments on the range of issues to be considered during the preparation of the EIS. In addition to public scoping meetings NMFS solicited proposals from stakeholder groups on where, when, and how to achieve vertical line risk reduction based on the output of the co-occurrence model.

These stakeholder proposals were then presented to the ALWTRT at a January 2012 Full Team meeting. Each proposal was analyzed to determine the level of vertical line and co-occurrence reduction that would be achieved as a result of the proposed measures. The Alternatives are based upon information gathered during public scoping meetings, TRT meetings, and through our state partners. Stakeholders also submitted Vertical Line Risk Reduction Proposals, and the alternatives incorporated some portions of these proposals.

During the rulemaking process, NMFS received numerous comments from diverse interested parties. The comments included both formal written comments as well as oral comments offered at public hearings. Volume II of this EIA summarizes the comments received on the DEIS and proposed rule. Volume II also summarizes the comments received during the initial stages of rulemaking at the public scoping meetings.

Exhibit 3-1 summarizes the key gear components of the proposed alternatives, arranging the requirements by lobster management area and geographic region (where appropriate). The discussion below describes each alternative in greater detail, highlighting the differences among alternatives as well as their similarities.

Exhibit 3-1
PROPOSED ALWTRP MANAGEMENT ALTERNATIVES 2-6
(Requirements in addition to current ALWTRP requirements (i.e., No Action alternative))

Location	Component	Alternative 2***	Alternative 3	Alternative 4	Alternative 5	Alternative 6 (Draft)	Alternative 6 (Preferred)
Northeast Region (Proposed Management measures include increasing the number of traps/trawl and/or closures and gear marking)							
Maine State waters		2 to 4	2	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3, and ¼ mile buffer around islands
Maine (3-12 mile)		5 or 10	-----	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
Maine (12+ mile)		10 or 20	15	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
Maine (3-6 mile)		------	3	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
Maine (6-12 mile)		------	5 or 10	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
MA State Waters		3	= Alt. 2	= Alt. 2	= Alt. 2	2	2
Rhode Island State Waters		3	= Alt. 2	= Alt. 2	= Alt. 2	=Alt. 2	2
NH State Waters		3	Exempt	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
LMA 1 (0-3 mile)		3	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA 1 (3-12 mile)		10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA 1 (12+ mile)		20	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA1/OC overlap (0-3 mile)		2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
OC (0-3 mile)		2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2

Location	Component	Alternative 2***	Alternative 3	Alternative 4	Alternative 5	Alternative 6 (Draft)	Alternative 6 (Preferred)
OC (3-12 mile)		10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
OC (12+ mile)		20	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA 2 (0-3 mile)		3	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA 2 (3-12 mile)		10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
LMA 2 (12+ mile)		20	15	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
LMA 2/3 Overlap (12+mile)		20	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
LMA 3 (3-12 mile)		10	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
LMA 3 (12+ mile)		20	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
Trap/pot Closure Areas							
Jordan Basin (LMA 3, 12+ mile)		20	20	Closed Nov. 1-Jan. 31	Closed Nov. 1-Jan. 31	20	20
Jeffreys Ledge (LMA 1, 3-12+ mile)		10 or 20	10 or 20	Closed Oct. 1- Jan 31	Closed Oct. 1- Jan 31	10 or 20	10 or 20
Cape Cod Bay (LMA 1, 3-12+ mile)		10 or 20	Closed Feb 1- April 30	Closed Jan 1- April 30 (includes portion of OC and abuts GSC)	Closed Jan 1- April 30 (includes portion of OC and abuts GSC)	Closed Jan 1- April 30 (includes portion of OC)	Closed Jan 1- April 30 (includes portion of OC)
Mid-Atlantic Region							
New York, New Jersey, Delaware, Maryland, Virginia, North Carolina		Gear Mark/Monitor	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
Southeast Region (Measures would apply in the area defined as Southeast US Restricted Area North)							
Florida State waters	Weak links	$\leq$ 200 lbs	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Vertical Line	Breaking strength $\leq$ 1,500 lbs, must be sinking line and free of objects	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2

Location	Component	Alternative 2***	Alternative 3	Alternative 4	Alternative 5	Alternative 6 (Draft)	Alternative 6 (Preferred)
	Other	Must use one buoy line with one trap, gear mark	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
Georgia State waters	Weak Links	≤ 600 lbs	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Vertical Line	Breaking strength ≤ 2,200 lbs, must be sinking line and free of objects	= Alt. 2	= Alt. 2		= Alt. 2	= Alt. 2
	Other	Must use one buoy line with one trap, gear mark	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
South Carolina State waters	Weak links	≤ 600 lbs	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Vertical Line	Breaking strength ≤ 2,200 lbs, must be sinking line and free of objects	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Other	Must use one buoy line with one trap, gear mark	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
Federal waters	Weak links	Status Quo	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Vertical Line	Must be sinking line and free of objects	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Other	Must use one buoy line with one trap, gear mark, bring gear back to shore at conclusion of trip	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2

*** trawls with 5 or less traps will have 1 endline. 'Or' is based on Maine Zone
OC = Outer Cape
GSC = Great South Channel

3.1.1 Non-Regulatory Components

NMFS will pursue a number of non-regulatory actions outside of the proposed rulemaking described here. Continued outreach and enforcement efforts are necessary to ensure that fishermen understand the regulations and to improve compliance. In addition to continued and enhanced outreach and enforcement, NMFS will continue to request that their state partners provide gear characterization reports on an annual basis. This will allow NMFS to continue to monitor the amount, location, and type of gear in the water. This will be important so that NMFS can monitor what effects, if any, the action has on fishing effort.

3.1.2 Alternative 1: No Action Alternative

Under Alternative 1, NMFS would continue with the status quo, i.e., the baseline set of ALWTRP requirements currently in place. A description of the current requirements can be found in Chapter 2.

Exhibit 3-2 summarizes the current and proposed gear marking scheme.

Exhibits 3-3 and 3-4 present the current management areas for trap/pot and gillnet fisheries.

3.1.3 Alternative 2

Alternative 2 would modify the ALWTRP in a number of ways varying by region.

Northeast Region:

- Increase the number of traps per trawl based on area fished and miles fished from shore [(0-3), (3-12), and (12+)] within current lobster management areas (Exhibit 3-4).
    - Maine waters are managed based on zone and the proposed number of traps per trawl differ based on Maine zone.

Southeast Region:

- Propose to use the Southeast U.S. Restricted Area N, a current gillnet area, as a new trap/pot management area (Exhibit 3-5).

- Throughout the Southeast U.S. Restricted Area N, require the following for trap/pot gear:
    - Traps must be set with one buoy line and not multiple-trap trawls.

  - The whole buoy/vertical line (from trap/pot to buoy) should be the same diameter and free of objects (e.g., weights, floats, etc.) and the buoy/vertical line must be made of sinking line.

- The breaking strength of the weak link between the buoy and vertical line does not exceed 600 lbs (Georgia/South Carolina state waters and Federal waters) and 200 lbs (Florida state waters). The breaking strength of the vertical line would not exceed 2,200 lbs (Georgia/South Carolina state waters and Federal waters) and 1,500 lbs (Florida state waters).

- In Federal waters, trap/pot gear must be brought back to shore at the conclusion of each trip.

Coastwide:

- Robust gear marking. See Section 3.1.7 for description of the proposed gear marking scheme.

- Regulatory language changes to better define and clarify previously implemented requirements. See Exhibit 3-6 for description of language changes.

3.1.4 Alternative 3

Northeast Region:

- A combination of NMFS proposed traps per trawl (Exhibit 3-5) and ideas from our State partners.
    - Maine Department of Marine Resources provided a proposal for traps per trawl based on Maine zones and distance from shore that differ from NMFS [(0-3), (3-6), (6-12), and (12+)] (Exhibit 3-7).
    - Massachusetts Division of Marine Fisheries proposed a closure in the Cape Cod Bay Critical Habitat area for all trap/pot fisheries from February 1 through April 30th.
    - Rhode Island Department of Environmental Management requested a minimum 15 trap per trawl requirement in LMA 2 (12+) as opposed to NMFS' 20 trap per trawl limit.
    - New Hampshire Department of Fish and Game requested that New Hampshire state waters be exempt from the proposed trap per trawl limits (Exhibit 3-8) and all current requirements under the Plan.
    - NMFS proposal (Alternative 2) is in effect in all waters and times of year that are not covered by the State proposals.

Southeast Region: Alternative 2 measures apply.

Coastwide: Alternative 2 gear marking scheme and regulatory language changes apply.

3.1.5 Alternative 4

Northeast Region:

- The same as Alternative 2 with the addition of closures in certain areas as proposed by the Conservation/Scientist stakeholder group.
- Three closures for all trap/pot fisheries are included in this proposal (Exhibit 3-9):
    - Jordan Basin (Nov 1 to Jan 31)
    - Jeffreys Ledge (Oct 1 to Jan 31)
    - Massachusetts Restricted Area #1: Area of Cape Cod Bay and Outer Cape to Great South Channel (Jan 1 to April 30)
- NMFS proposal (Alternative 2) is in effect in all waters and times of year that are not covered by the closures.

Southeast Region: Alternative 2 measures apply.

Coastwide: Alternative 2 gear marking scheme and regulatory language changes apply.

3.1.6 Alternative 5

Northeast Region:

- Alternative 5 is a combination of Alternatives 3 and 4. Where the proposed Cape Cod Bay Critical Habitat and Massachusetts Restricted Area #1 closures overlap, the larger closure (Massachusetts Restricted Area #1) in time and area is proposed.
- NMFS proposal (Alternative 2) is in effect in all waters and times of year that are not covered by the state proposals or closures.

Southeast Region: Alternative 2 measures apply.

Coastwide: Alternative 2 gear marking scheme and regulatory language changes apply.

3.1.7 Alternative 6 (Draft)

Northeast Region:

- Alternative 6 is similar to Alternative 5 but only includes one of the three trap/pot closures proposed in Alternative 5 and it is a smaller area than proposed in previous Alternatives (i.e., Massachusetts Restricted Area #2: Cape Cod Bay and Outer Cape Area instead of Cape Cod Critical Habitat or Massachusetts Restricted Area #1).
- NMFS proposal (Alternative 2) is in effect in all waters and times of year that are not covered by the closures.
- NMFS proposal is modified in all Massachusetts state waters to include trawling up to 2 traps per trawl.

Southeast Region: Alternative 2 measures apply.

Coastwide: Alternative 2 gear marking scheme and regulatory language changes apply.

3.1.8 Alternative 6 (Preferred)

In response to comments received on the DEIS and proposed rule, NMFS developed a final preferred alternative that builds on Alternative 6 (Draft). The rationale for the preferred alternative is presented in Chapter 1. The main difference in the Alternatives is attributable to the difference in minimum number of traps per trawl required based on area fished. NMFS considers Alternative 6 (Draft) and Alternative 6 (Preferred) to be similar in reducing entanglement risk despite the differences in Alternatives. As discussed in Chapter 5, the impacts are not substantially different from the range of alternatives discussed in the DEIS. NMFS believes the addition of the Alternative 6 (Preferred) is appropriate in light of the comments on the proposed rule and DEIS. The discussion below highlights changes relative to Alternative 6 (Draft).

In the Northeast Region changes relative to Alternative 6 (Draft) include the following:

- Rhode Island state waters include trawling up to two traps per trawl.
- New Hampshire state waters are only exempt from the minimum number of traps per trawl requirement. All other portions of the ALWTRP would remain in effect.
- Portions of pocket waters in Maine are outside the traditional 3-mile line, in accordance with Federal definition of pocket waters (Exhibit 3-10), NMFS identified as these waters as state waters and as such those fishing in these waters would abide by the state minimum of two traps per trawl as opposed to following the minimum trawl numbers for waters 3-6 miles from shore.
- Three inhabited islands in Maine (Monhegan, Rugged, and Matinicus) would have a ¼ mile buffer delineated around them (Exhibit 3-11). Those fishing in these buffer waters would be able to continue fish using singles.

In the Southeast Region there are no changes relative to Alternative 6 (Draft). The gear marking scheme proposed coastwide would remain the same with the exception that Maine exempt waters would not be required to mark gear as originally proposed.

3.1.9 Gear Marking Scheme

The current gear marking strategy (implemented in 1997) is inadequate and should be improved. From 1997-2011 there were 499 large whale entanglement events. Gear was retrieved in 170 of these cases; of the cases where gear was retrieved, gear marking lead to 51 cases where fishery, location, and date were known. A stronger gear marking strategy would help answer questions such as when and where entanglements occur. Current regulations require one 4" colored mark midway along the buoy line and surface buoys to identify the vessel or fishery. Colors correspond to specific ALWTRP management areas.

The proposed gear marking scheme would maintain the current color combinations but increase the size and frequency of the mark. The new mark must equal 12" in length and buoy lines must be marked three times (top, middle, bottom). A mark for the new Southeast US Restricted Area North would be required for both state and Federal water. This proposal would continue to allow multiple methods for marking line (paint, tape, rope, etc).

The table below outlines the proposed gear marking colors. The line must be marked three times and each mark must total 12" in length. If the mark consists of two colors then each color mark can be 6" for a total mark of 12".

Exhibit 3-2
PROPOSED GEAR MARKING

ALWTRP Mgmt Area	***Lobster Mgmt Area	Color
Trap/Pot gear		
Cape Cod Bay Restricted Area	LMA1	Red
Northern Nearshore	LMA1, LMA2, and Outer Cape	Red
Northern Inshore State	LMA1, LMA 2, LMA 2/3, and Outer Cape	Red
Stellwagen Bank/Jeffreys Ledge Restricted Area	LMA1	Red
Great South Channel Restricted Area overlapping with LMA 2 and/or Outer Cape	LMA2 and Outer Cape	Red
Southern Nearshore	LMA 4, LMA 5, LMA 6	Orange
Southeast US Restricted Area North*	State Waters	Blue and Orange
Southeast US Restricted Area North*	Federal Waters	Green and Orange
Offshore	LMA 2/3 and LMA 3	Black
Great South Channel Restricted Area overlapping with LMA 2/3 and/or LMA 3	LMA 2/3 and LMA 3	Black
New Hampshire* and Maine** Exemption Area (Alternative 2-6 Draft only)	LMA 1	Red and Blue
Gillnet gear excluding shark gillnet		

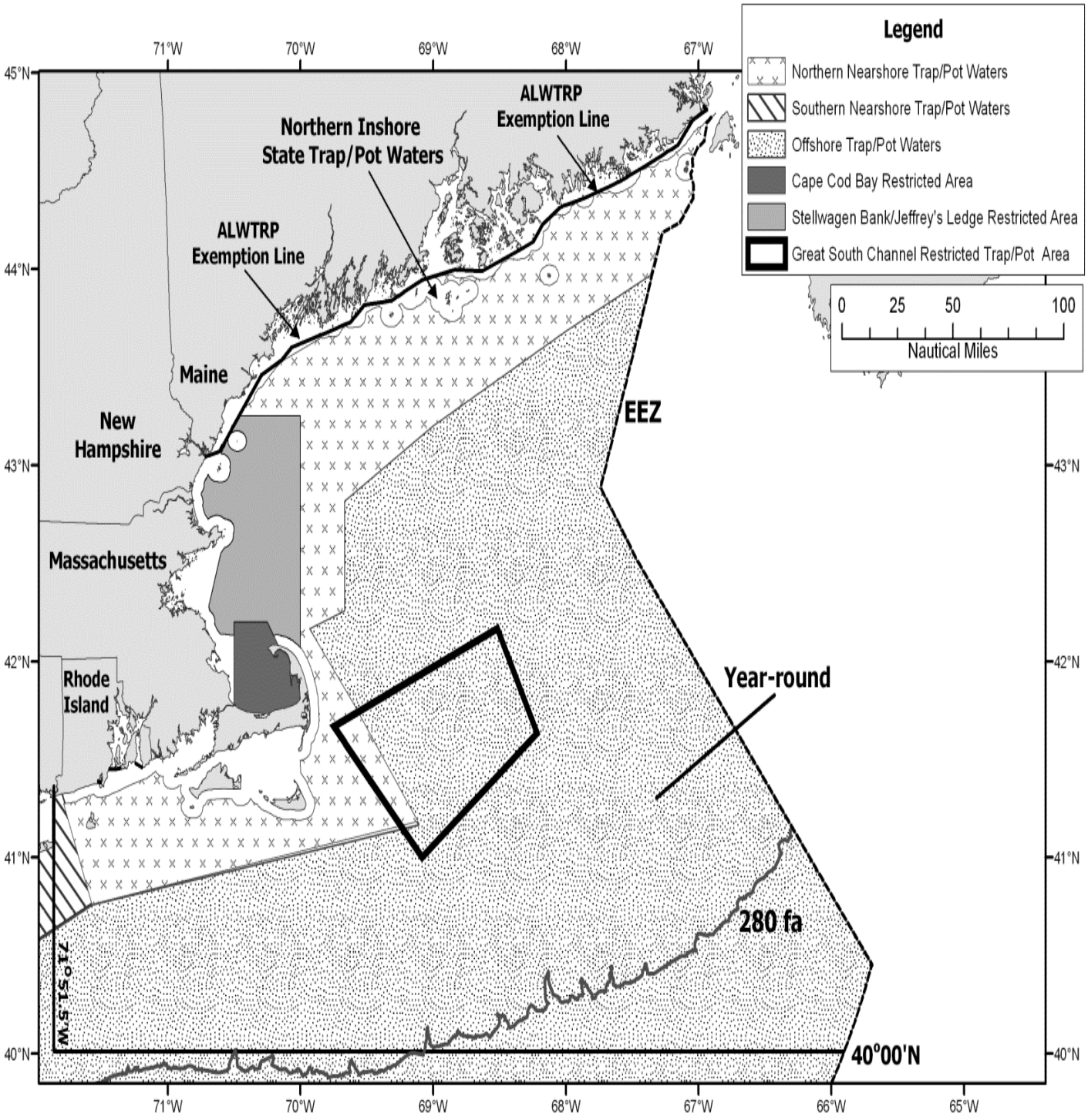
ALWTRP Mgmt Area	***Lobster Mgmt Area	Color
Cape Cod Bay Restricted Area	-----	Green
Stellwagen Bank/Jeffreys Ledge Restricted Area	-----	Green
Great South Channel Restricted Area	-----	Green
Great South Channel Sliver Restricted Area	-----	Green
Other Northeast gillnet waters	-----	Green
New Hampshire* and Maine** Exemption Area (Alternative 2-6 Draft only)	-----	Red and Blue
Mid/South Atlantic Gillnet waters	-----	Blue
Southeast US Restricted Area South	-----	Yellow
Other Southeast Gillnet waters	-----	Yellow
Shark Gillnet (with webbing of 5" or greater)		
Southeast US Restricted Area South	-----	Green and Blue
Southeast Monitoring Area	-----	Green and Blue
Other Southeast Waters	-----	Green and Blue

* New trap/pot management area
**Mark for the Maine exemption area does not currently exist.
** *LMA is identified if new traps per trawl scenarios have been proposed in these areas.

Exhibit 3-3

MANAGEMENT AREAS UNDER ALTERNATIVE 1 (No Action Alternative)

Northeast Region Trap/Pot Management Areas



Southeast Region Trap/Pot Management Areas

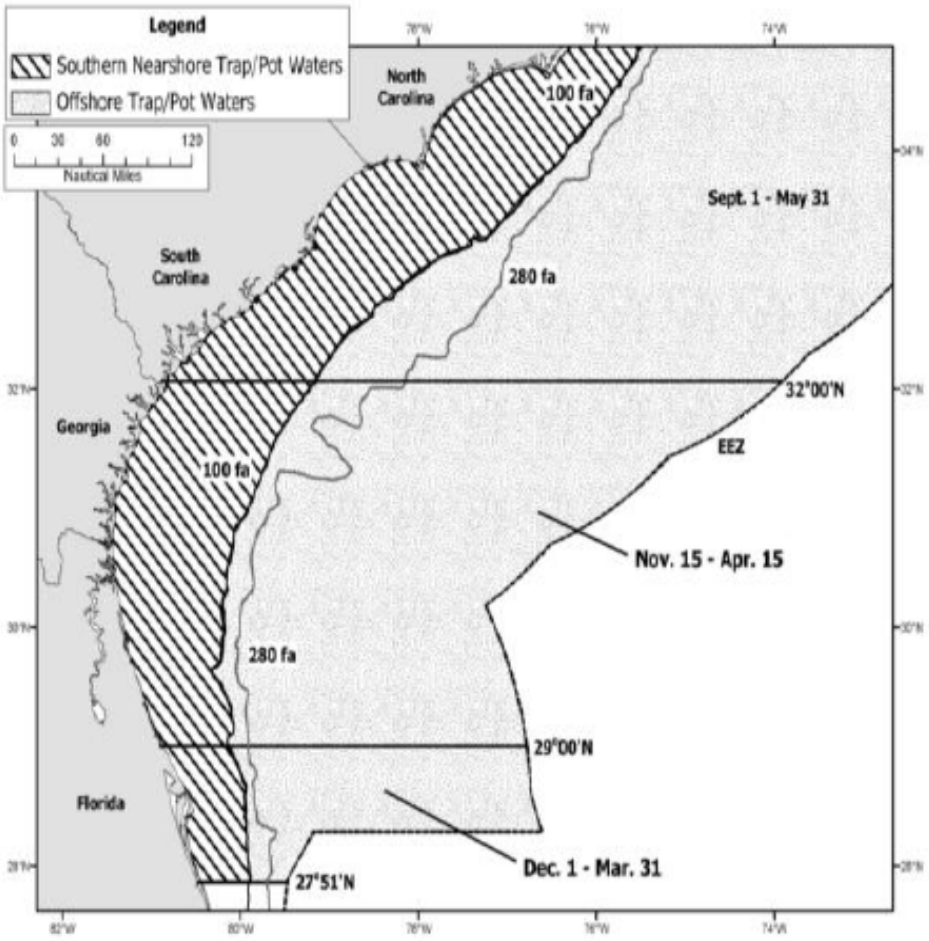


Exhibit 3-4
NORTHEAST REGION TRAPS PER TRAWL PROPOSAL UNDER ALTERNATIVES 2 AND 4

Northeast Area (miles)	Minimum Traps/Trawl	Number of Endlines
Maine A (non-exempt state waters)	2	1
Maine B (non-exempt state waters)	3	1
Maine C (non-exempt state waters)	3	1
Maine D (non-exempt state waters)	3	1
Maine E (non-exempt state waters)	2	1
Maine F (non-exempt state waters)	4	1
Maine G (non-exempt state waters)	2	1
Maine A (3-12)	5	1
Maine B (3-12)	5	1
Maine C (3-12)	5	1
Maine D (3-12)	5	1
Maine E (3-12)	5	1
Maine F (3-12)	10	2
Maine G (3-12)	10	2
Maine A (12+)	10	2
Maine B (12+)	10	2
Maine C (12+)	10	2
Maine D (12+)	10	2
Maine E (12+)	10	2
Maine F (12+)	20	2
Maine G (12+)	20	2
LMA 1 (0-3)	3	1
LMA 1 (3-12)	10	2
LMA 1 (12+)	20	2
LMA1/OC Overlap (0-3)	2	1
OC (0-3)	2	1
OC (3-12)	10	2
OC (12+)	20	2
LMA 2 (0-3)	3	1
LMA 2 (3-12)	10	2
LMA 2 (12+)	20	2
LMA 2/3 Overlap (12+)	20	2
LMA 3 (3-12)	10	2
LMA 3 (12+)	20	2

Exhibit 3-5

PROPOSED SOUTHEAST REGION TRAP/POT MANAGEMENT AREAS (Under Alternatives 2-6 (Draft and Preferred))

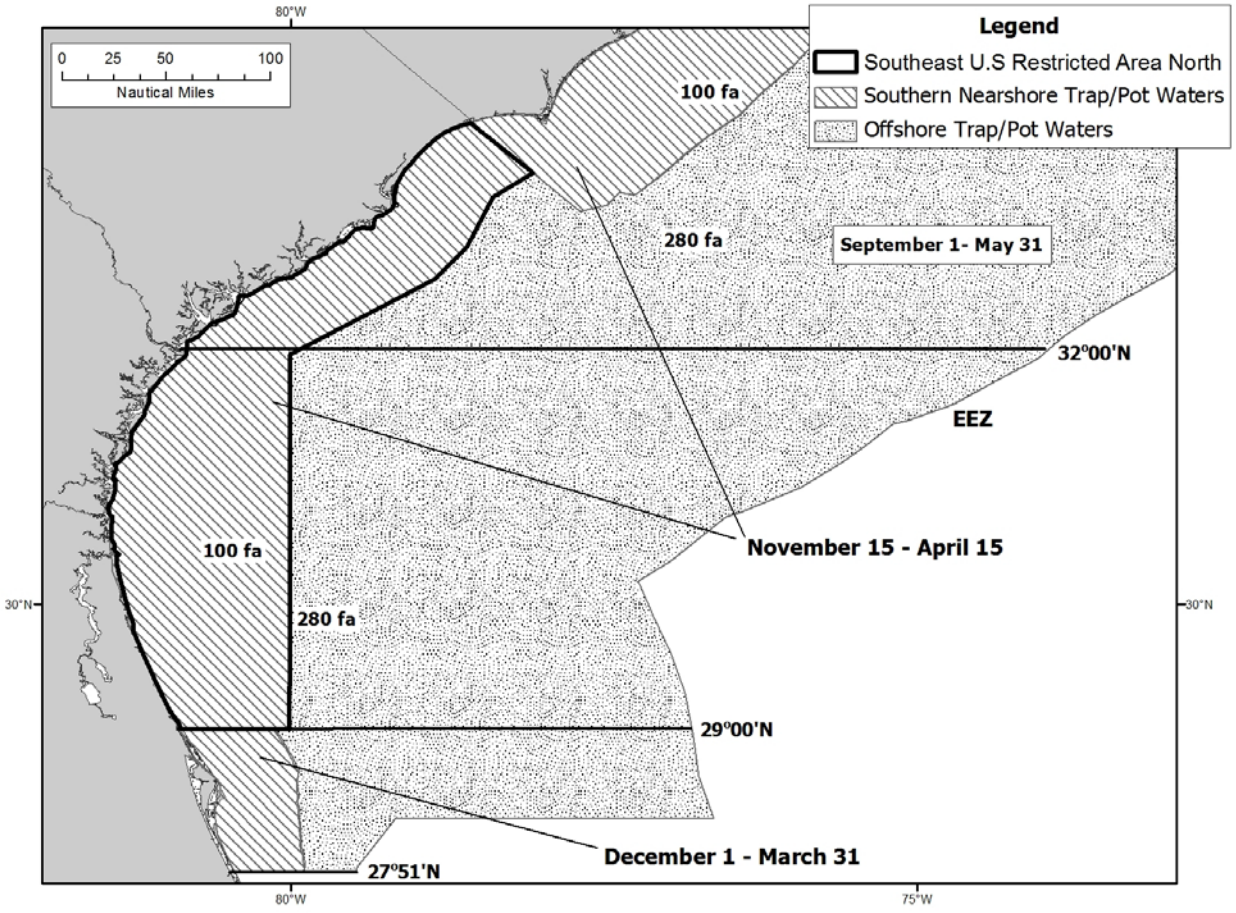


Exhibit 3-6
REGULATORY LANGUAGE CHANGES FOR ALTERNATIVES 2-6 (Draft and Preferred)

1. For the definition of ground line referring to gillnet remove reference to 'or buoy line'
2. Clarify exempted waters language
3. Clarify the definition of the restricted period for the Southeast US Monitoring Area
4. Clarify other special measures language

Exhibit 3-7

MAINE DEPARTMENT OF MARINE RESOURCES TRAPS PER TRAWL PROPOSAL UNDER ALTERNATIVES 3, 5, AND 6 (Draft and Preferred)

Number of traps per trawl

Maine Zone	Non-Exempt State Waters	3-6 Miles	6-12 Miles**	12+ Miles
A	2	3	5	15
B	2	3	5	15
C	2	3	5	15
D	2	3	10	15
E	2	3	10	15
F	2	3	10	15*
G	2	3	10	15*

* Zone F and G in the 12+ miles range will go to a 20 trap per trawl minimum with 2 endlines from November through February
** Five trap per trawl minimum in Zones A-C in the 6-12 mile area will have one endline, 10 trap per trawl and 15 trap per trawl will have 2 endlines

Coordinates of the proposed six mile line in Maine waters[1]

- 44°31.98′ N. lat., 67°9.72′ W. long (Machias Seal)
- 44°3.42′ N. lat., 68°10.26′ W. long (Mount Desert Island)
- 43°40.98′ N. lat., 68°48.84′ W. long (Matinicus)
- 43°39.24′ N. lat., 69°18.54′ W. long (Monhegan)
- 43°29.4′ N. lat., 70°5.88′ W. long (Casco Bay)
- 42°55.38′ N. lat., 70°28.68′ W. long (Isle of Shoals)

[1] Disclaimer: Due to a conversion error, these coordinates have changed slightly from what was proposed in the DEIS. As a result the analysis was redone in the FEIS so the number of vessels affected, reduction in vertical line, and reduction in co-occurrence may differ slightly from what was presented in the DEIS. The impact of this change is relatively small and does not affect the decisions previously made in the DEIS.

Exhibit 3-8
PROPOSED EXEMPT WATERS UNDER ALTERNATIVES 3, 5, AND 6 (Draft and Preferred)

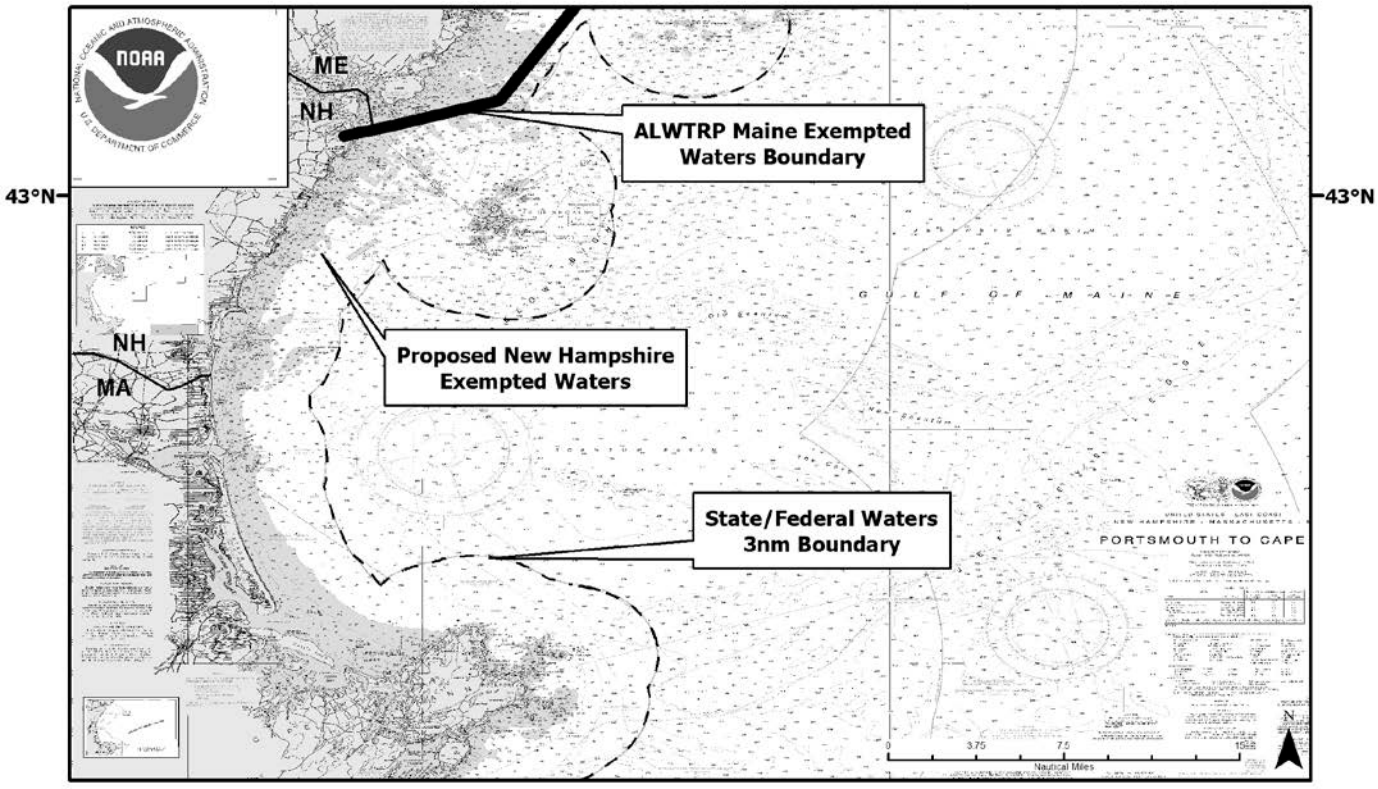
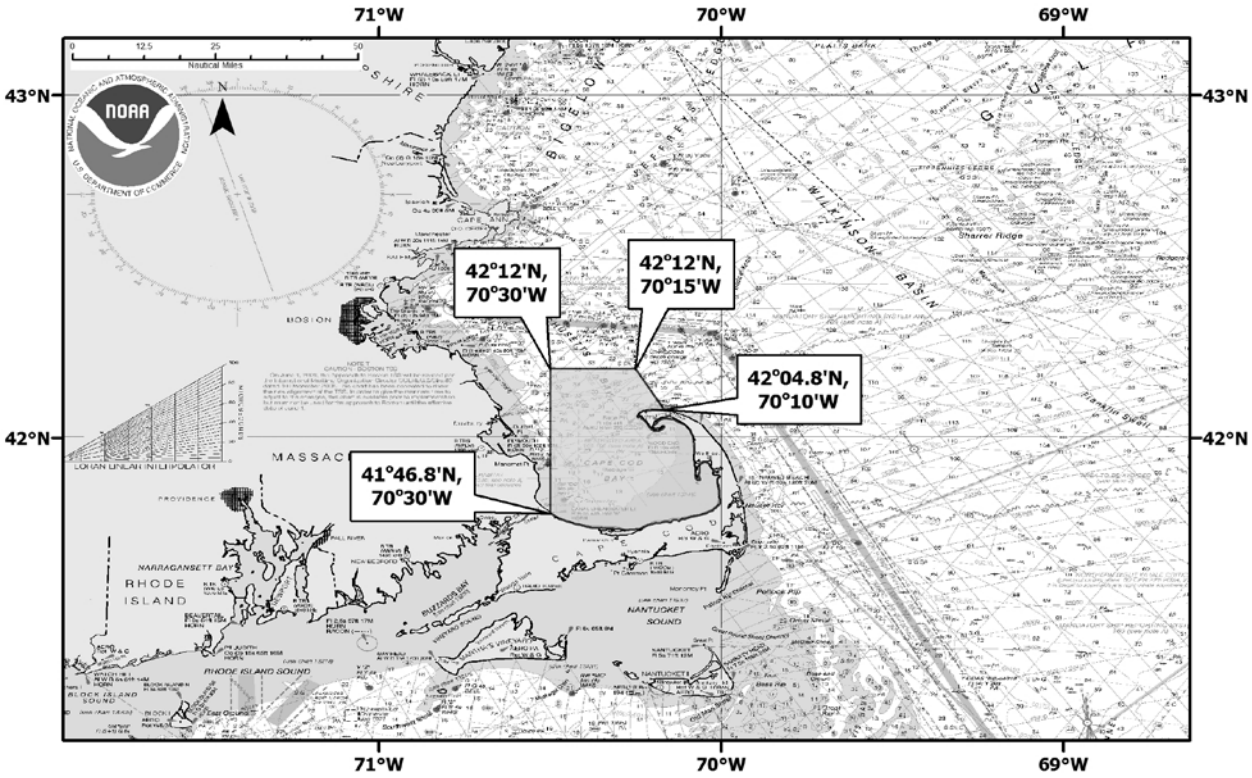
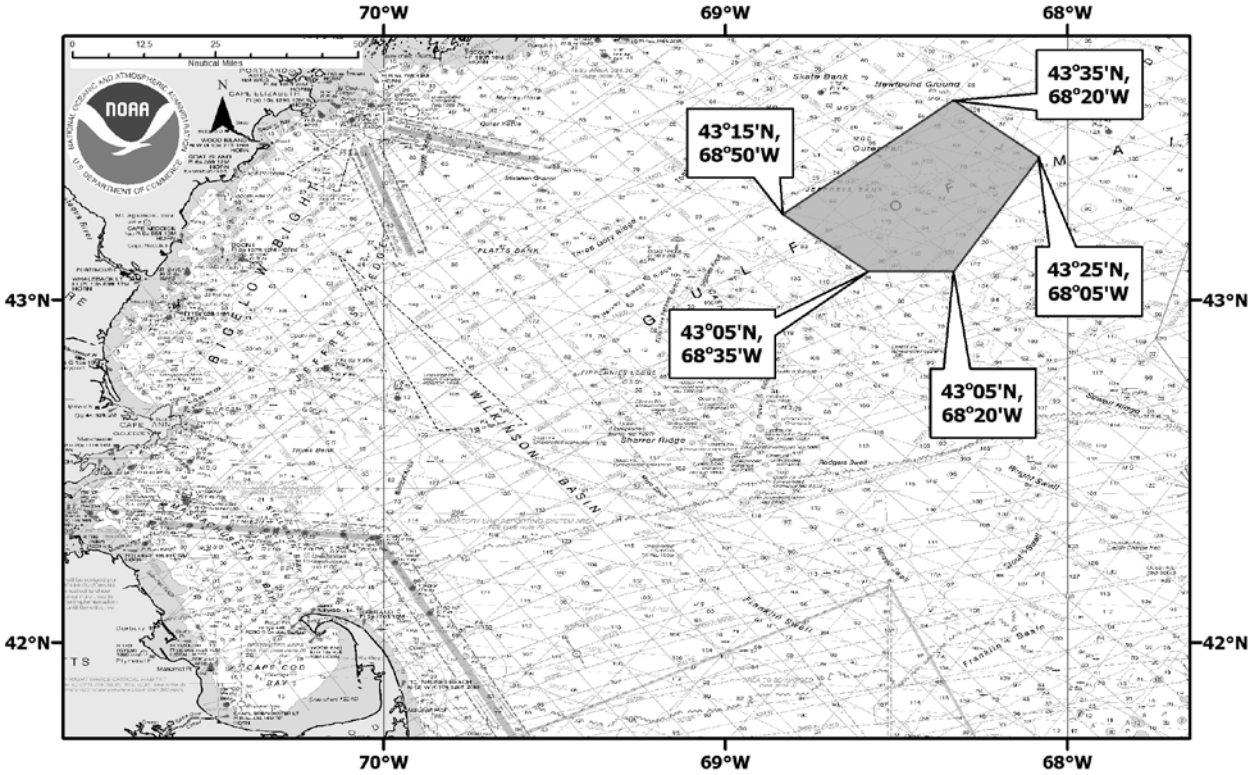


Exhibit 3-9
PROPOSED CLOSURES UNDER ALTERNATIVES 3, 4, 5, AND 6(Draft and Preferred)

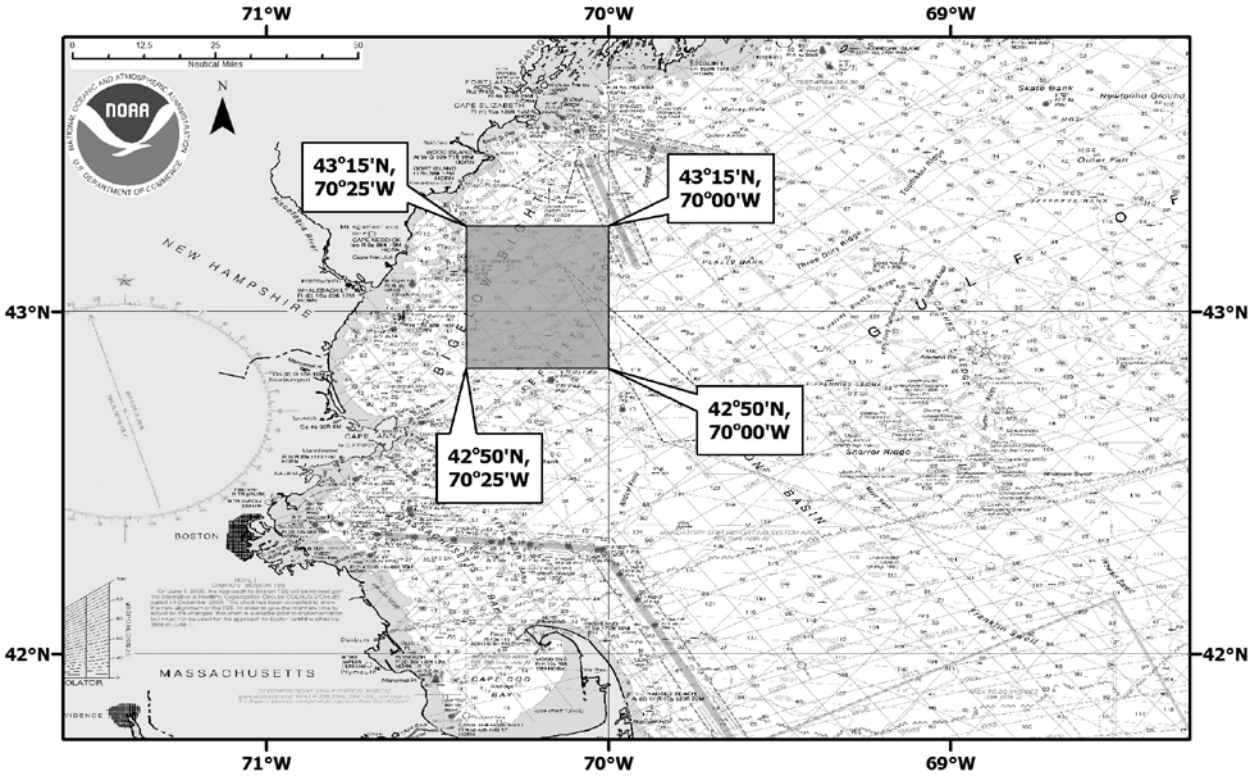
Cape Cod Bay Restricted Area (Alternative 3)
Closed to ALL trap/pot gear from February 1 through April 30



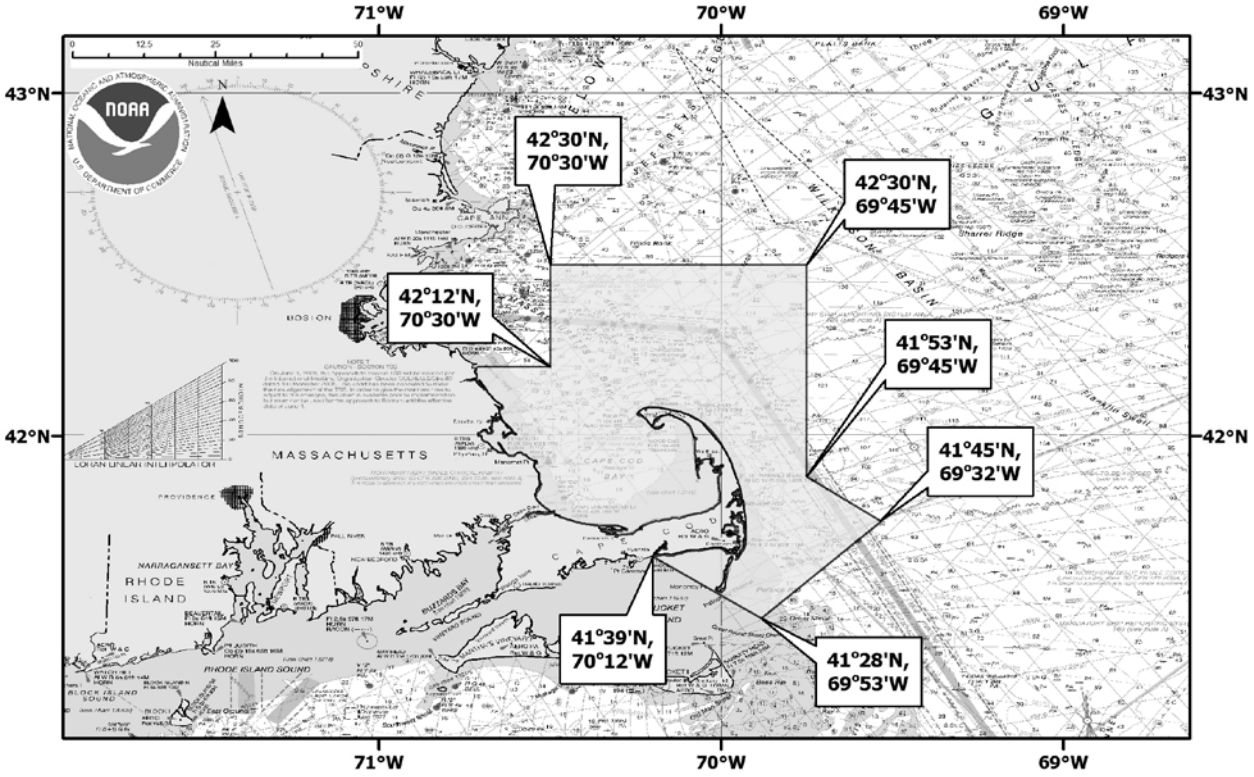
Jordan Basin (Alternative 4 and 5)
Closed to ALL trap/pot gear from November 1 through January 31



Jeffreys Ledge (Alternative 4 and 5)
Closed to ALL trap/pot gear from October 1 through January 31



Massachusetts Restricted Area #1 (Alternative 4 and 5)
Closed to ALL trap/pot gear from January 1 through April 30



Massachusetts Restricted Area #2 (Alternative 6 Draft and Preferred)
Closed to ALL trap/pot gear from January 1 through April 30

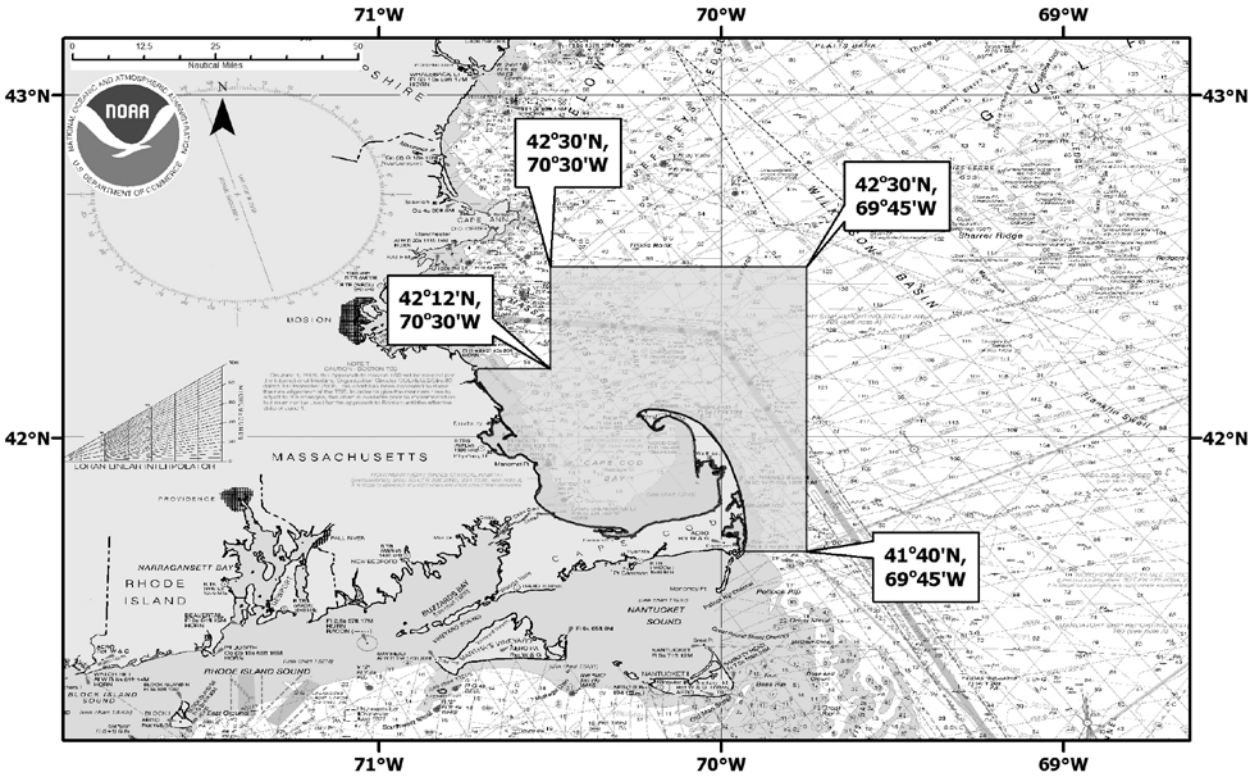
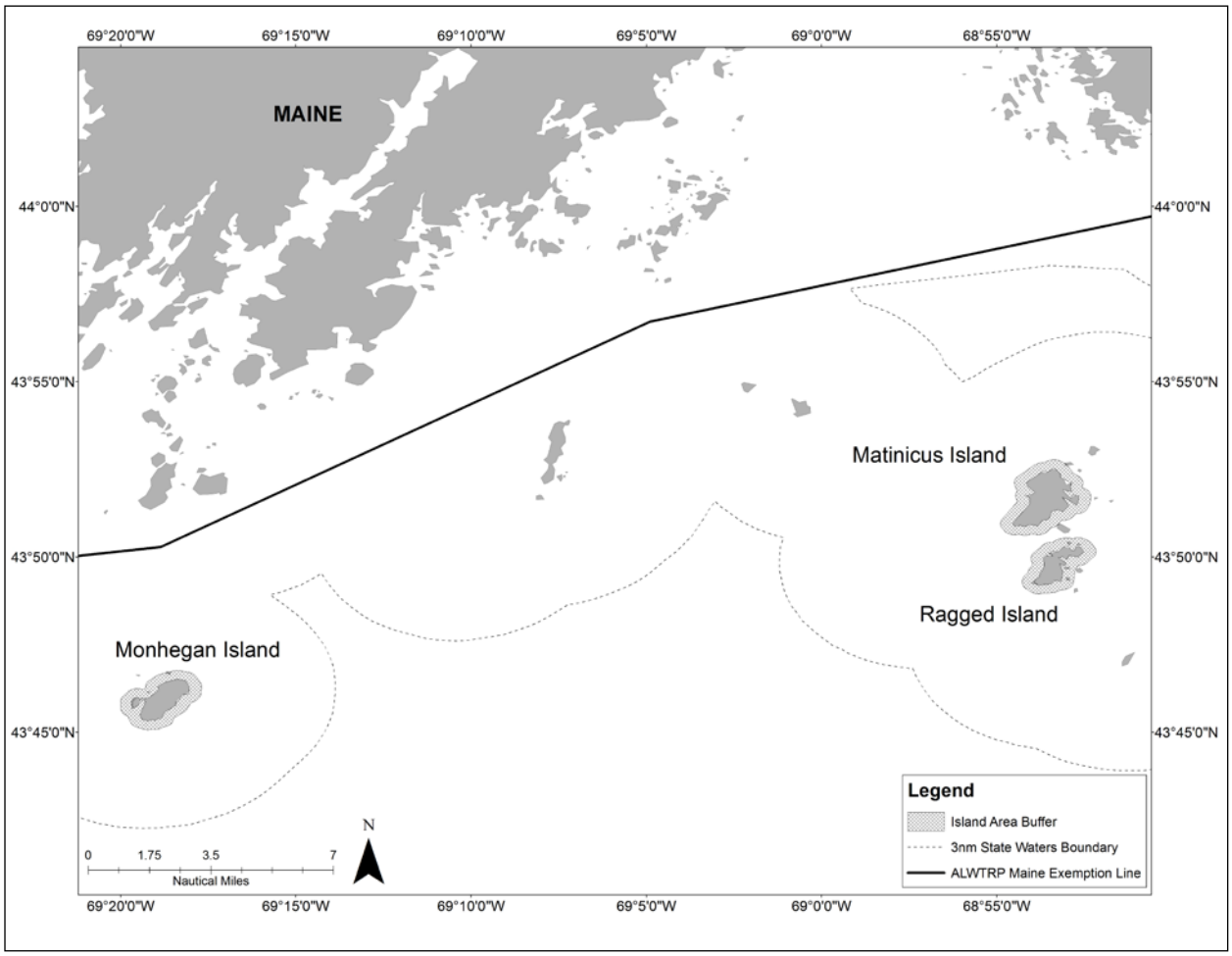


Exhibit 3-10
DESCRIPTION OF MAINE POCKETS WATERS PROPOSED UNDER ALTERNATIVE 6 (PREFERRED)

- West of Monhegan Island in the area north of the line 43°42.17′ N. lat., 69°34.27′ W. long and 43°42.25′ N. lat., 69°19.3′ W. long
- East of Monhegan Island in the area located north of the line 43°44′ N. lat., 69°15.08′ W. long and 43°48.17′ N. lat., 69°8.02′ W. long
- South of Vinalhaven Island in the area located west of the line 43°52.31′ N. lat., 68°40′ W. long and 43°58.12′ N. lat., 68°32.95′ W. long
- South of Bois Bubert Island in the area located northwest of the line 44°19.27′ N. lat., 67°49.5 W. long and 44°23.67′ N. lat., 67°40.5′ W. long

Exhibit 3-11
PROPOSED ¼ MILE BUFFER AROUND MAINE ISLANDS UNDER ALTERNATIVE 6 (PREFERRED)



3.2 ALTERNATIVES CONSIDERED BUT REJECTED

In the scoping efforts conducted for this rulemaking, stakeholders recommended a variety of approaches for reducing entanglement risk to large whales. Scoping discussions included the meeting of the full Take Reduction Team as well as a series of public meetings held at key locations on the Atlantic coast.

While NMFS solicited and considered all input from stakeholders, a number of approaches were rejected in the formulation of alternatives. Exhibit 3-11 summarizes these approaches and briefly explains why NMFS chose not to integrate the approach into the regulatory alternatives under consideration. The rejected approaches are organized by fishery and region. Stakeholders identified many approaches that would apply to more than one fishery or region; hence, many of the concepts are repeated in the table. The alternatives described are

not mutually exclusive; i.e., some were recommended in combination, despite the fact that they are listed and addressed separately in the table.

The rejected alternatives are wide-ranging in content. Concepts that recur frequently in the alternatives include the following:

- Requiring increased traps per trawl on a seasonal basis
- Suggesting reductions in traps equal reductions in number of end lines
- One endline on trawls with more than five traps
- Maintain status quo until see if current requirements are working
- Managing gillnets under this vertical line rule

Exhibit 3-12
ALTERNATIVES CONSIDERED BUT REJECTED

Topic	Alternative Considered but Rejected	Rational for Rejection
Seasonal measures	Adopt seasonal increase in traps per trawl as opposed to year round measures.	During our scoping meetings we heard that the public favored year round measures with the exception of the Southeast. Measures in the Southeast would be on a seasonal basis due to the seasonal shift in distribution of right whales.
Gear marking	Maintain status quo	The current marking scheme is ineffective and therefore needs to be modified. Status Quo is not an option.
	Mark by State and by fishery	This scheme would be too complex and create undue hardship on those vessels fishing in multiple states.
	Mark groundline and endline differently	Groundline is required to be sinking groundline and therefore the risk of entanglement from groundline has decreased. This rule focuses on decreasing the risk of vertical line and as such the proposed gear marking should be focused on vertical line only.
Reduction in trap allocations	Maintaining status quo and relying on proposed reductions in trap allocations to account for reductions in vertical lines.	A reduction in traps does not necessarily equate to a reduction in vertical line and therefore would not meet our goal of reducing the risk of vertical lines.
Vertical line	Require one endline for all trawls with greater than five traps.	During our scoping meetings we heard that fishing for longer trawls with one endline was extremely dangerous.
Closures	Implement closure for gillnet in Great South Channel Sliver Area	There is little fishing effort in this area so the benefit would not outweigh the potential economic burden on industry.
Gillnets	Including management measures for gillnets under this rule	See Appendix 3-A

Appendix 3-A

RATIONALE FOR REJECTING PROPOSED GILLNET MEASURES

Following implementation of the ground line rule, the NMFS and the ALWTRT turned focus to vertical line risk reduction, consistent with the decision of the ALWTRT in 2003. At the 2009 ALWTRT meeting, the Team agreed on a schedule to develop a management approach to reduce the risk of serious injury and mortality due to vertical line. The approach for the vertical line rule focuses on reducing the risk of vertical line entanglements in high impact areas versus a wide-broad scale management scheme. Using fishing gear survey data and whale sightings per unit effort (SPUE), a model was developed to determine the co- occurrence of fishing gear density and whale density. The ALWTRT Northeast Subgroup met in November 2010 and the Mid-Atlantic/Southeast Subgroup met in April 2011 to review the co-occurrence model and consider its implications for an overall management strategy to address vertical line entanglements. The Team agreed NMFS should use the model to consider and develop possible options to address fishery interactions with large whales by reducing the potential for entanglements, minimizing adverse effects if entanglements occur, and mitigating the effects of any unavoidable entanglements.

The gear characterization information in the model shows the majority of the vertical lines coastwide are from lobster trap/pot and other trap/pot fisheries (Exhibit 3A-1). For this reason, NMFS decided to focus this rule making on trap/pot gear only.

Exhibit 3A-1
Trap/Pot vs Gillnet Gear

Annual Average Number of FTE Active Vessels[1] (2011 Baseline)		
	Coastwide	Northeast
Lobster Trap/Pot	**2,044**	**1,995**
Other Trap/Pot	**91**	**67**
Gillnet	**213**	**93**

[1] FTE Active Vessels stands for Full Term Equivalent vessel. Using Federal and state data sources, the model estimates the number of commercial fishing vessels that participate in each fishery. Depending on the location and fishery, the model employs a variety of methods to estimate the number of active vessels this differs from the number of permitted vessels.

Annual Average Number of Vertical Lines (2011 Baseline)		
	Coastwide	Northeast
Lobster Trap/Pot	**224,457**	**220,330**
Other Trap/Pot	**7,905**	**5,630**
Gillnet	**1,501**	**615**

Several stakeholders suggested that the proposed closures should affect both trap/pot and gillnet gear; however, looking at the amount of gillnet vertical lines removed as a result of the proposed closures the result is minimal compared to the trap/pot gear removed (Exhibit 3A-2). This result leads to a high economic impact on individual gillnet vessels but low overall conservation impacts or reduction in co-occurrence. Therefore, NMFS proposes the closures for only trap/pot gear and not gillnet gear. The current gillnet gear closures would remain in place.

Exhibit 3A-2
Effects of Proposed Closures on Trap/Pot vs Gillnet Gear

Average Number of FTE Active Vessels Affected by Closure (During Closed Months)				
	Lobster	**Gillnet**	**Other Trap Pot**	**Total**
Alternative 3				
Cape Cod Bay Restricted Area	16	0	0	16
Alternatives 4 & 5				
Massachusetts Restricted Area #1	110	12	0	122
Jeffreys Ledge	69	5	0	74
Jordan Basin	5	0	0	5
Alternative 6Draft and Preferred				
Massachusetts Restricted Area #2	109	12	0	121

Average REDUCTION in Vertical Lines in Closures (assumes 100% Suspend Fishing)				
	Lobster	**Gillnet**	**Other Trap Pot**	**Total**
Alternative 3	841	0	0	841
Alternatives 4 & 5	15,262	568	35	15,865
Alternative 6Draft and Preferred	6,329	0	0	6,329

AFFECTED ENVIRONMENT CHAPTER 4

Consistent with Section 1502.15 of the CEQ NEPA regulations (40 CFR Part 1500), this chapter describes key components of the environment affected by the ALWTRP regulatory alternatives. Four major components are examined in detail:

- Section 4.1 discusses the status of Atlantic large whale species;
- Section 4.2 considers the economic and social aspects of the fisheries affected by the ALWTRP rules;
- Section 4.3 describes other protected species that may be affected by elements of the ALWTRP; and
- Section 4.4 provides information about habitat for affected commercial fish species.

4.1 STATUS OF ATLANTIC LARGE WHALE SPECIES

The discussion below examines the status of four key large whale species: the North Atlantic right whale, the humpback whale, the fin whale, and the minke whale. The discussion describes the range, life history, and abundance of each species, as well as factors that may affect their survival (including entanglement).

4.1.1 North Atlantic Right Whale

Two populations of the North Atlantic right whale (*Eubalaena glacialis*), an eastern and a western, are typically recognized (IWC, 1986). However, animals are sighted so infrequently in the eastern Atlantic, it is unclear whether a viable population still exists (NMFS, 1991a). This analysis focuses on the western North Atlantic population of right whales, which occurs in the proposed action area.

North Atlantic right whales are one of the most intensely studied cetacean species. The following six major habitats or high use regions for western North Atlantic right whales have been identified: the coastal waters of the southeastern United States; the Great South Channel; Georges Bank/Gulf of Maine; Cape Cod and Massachusetts Bays; the Bay of Fundy; and the Scotian Shelf (Waring et al., 2013). The minimum stock size for the western North Atlantic right whale is based on a census of individual whales identified using photo-identification techniques. A review of the database as it existed on October 21, 2011, indicated that 444 individually recognized whales in the catalog were known to be alive during 2009 (Waring et al., 2013). This value is minimum and also does not include some calves known to be born during 2009, or any other individual whale seen during 2009 but not yet entered into the catalog (Waring et al., 2013).

Examination of the minimum number alive population index calculated from the individual sightings database, as it existed on 21 October 2011, for the years 1990 -2010 reveals a positive and slowly accelerating trend in population size. Mean growth rate for the period was 2.6% (Waring et al., 2013). NMFS believes that the western population of North Atlantic right whales is well below the optimum sustainable population (OSP). Potential biological removal (PBR) is the product of minimum population size, one-half the maximum net productivity rate and a "recovery" factor for endangered, depleted, threatened stocks or stocks of unknown status relative to OSP. The recovery factor for right whales is 0.10 because this species is listed as endangered under the ESA. The minimum population size is 444 and the maximum productivity rate is 0.04, thus PBR for the Western Atlantic stock of North Atlantic right whale is 0.9.

The North Atlantic right whale is also listed as endangered under the ESA. Pursuant to the ESA, a Recovery Plan was published in 1991 and revised in 2005. The most recent 5-year status review was completed in September 2012.

In 1994, NMFS published a final rule designating critical habitat for right whales (59 FR 28793, June 3, 1994). The designated critical habitat included portions of Cape Cod Bay and Stellwagen Bank, the Great South Channel (each off the coast of Massachusetts), and the waters adjacent to the coast of Georgia and the east coast of Florida. These areas were determined to be essential to the conservation of right whales because of their importance as foraging, calving, and nursing habitats. For example, Cape Cod Bay and the Great South Channel represent two of the four known principal feeding grounds for adult right whales in the Western North Atlantic and the only two within U.S. waters. In addition, the waters off Georgia and Northern Florida have been identified as the only known calving ground for right whales. However, the designations were based primarily on right whale sightings data as opposed to an analysis of the physical and biological habitat features essential to the conservation of the species.

In July 2002, NMFS received a petition requesting revision of the current critical habitat designation for right whales, by combining and expanding the current Cape Cod Bay and Great South Channel critical habitats in the Northeast and by expanding the current critical habitat in the Southeast. In August 2003, NMFS determined that the requested revision, as specified by the petitioner, was not warranted at that time. However, NMFS indicated that it would continue to analyze the physical and biological habitat features essential to the conservation of right whales. Specifically, in the waters off the Northeast U.S., NMFS plans to continue its own work and collaborate with others working in the Gulf of Maine ecosystem to characterize the spatial and

temporal distribution of zooplankton. Furthermore, in the waters off the Southeast U.S., NMFS will continue to analyze right whale distribution data in relation to bathymetry and sea surface temperature derived from Advanced Very High Resolution Radiometer (AVHRR) imagery (68 FR 51758).

On March 8, 2008, NMFS published a final rule listing North Atlantic and North Pacific right whales as separate species under the ESA (73 FR 12024). This listing followed the completion of a status review of right whales in the North Pacific and North Atlantic oceans in December 2006. The status review indicated that separating the northern right whale into two different species was warranted in light of the compelling evidence provided by recent scientific studies on right whale taxonomy and classification. Genetic data now provide unequivocal support to distinguish three right whale lineages (including the southern right whale) as separate phylogenetic species: (1) the North Atlantic right whale (*E. glacialis*), ranging in the North Atlantic Ocean; (2) the North Pacific right whale (*E. japonica*), ranging in the North Pacific Ocean; and (3) the southern right whale (*E. australis*), historically ranging throughout the southern hemisphere's oceans (Rosenbaum et al., 2000).

On October 1, 2009, NMFS received a petition from the Center for Biological Diversity (CBD), Defenders of Wildlife, Humane Society of the United States, Ocean Conservancy, and the Whale and Dolphin Conservation Society (the Petitioners) to revise the designated critical habitat of the North Atlantic right whale. On October 27, 2009, NMFS sent a letter to the petitioners acknowledging receipt of the petition. On October 6, 2010, NMFS announced the 90-day finding and 12-month determination on how to proceed with a petition to revise critical habitat for the North Atlantic right whale (*Eubalaena glacialis*) pursuant to the ESA (75 FR 61690). The petition seeks to revise the existing critical habitat designation by expanding the areas designated as critical feeding and calving habitat areas for the North Atlantic right whale. Additionally, the petition seeks to include a migratory corridor as part of the critical habitat designation for the North Atlantic right whale. The 90-day finding is that the petition, in conjunction with the information readily available in the files, presents substantial scientific information indicating that the requested revision may be warranted. The 12-month determination on how to proceed with the petition is that NMFS intends to continue the ongoing rulemaking process which is expected to culminate with the publication of a proposed critical habitat rule for the North Atlantic right whale in the **Federal Register**.

Based on an analysis of the best scientific and commercial data available and after taking into consideration current population trends and abundance, demographic risk factors affecting the continued survival of the species, and ongoing conservation efforts, we determined that the North Atlantic right whale is in danger of extinction throughout its range because of: (1) overutilization for commercial, recreational scientific, or educational purposes; (2) the inadequacy of existing regulatory mechanisms; and (3) other natural and manmade factors affecting its continued existence. The listing of the endangered northern right whale (Eubalaena spp.) as two separate, endangered species, North Pacific right whale (E. japonica) and North Atlantic right whale (E. glacialis), was effective on April 7, 2008.

4.1.1.1 Range

North Atlantic right whales have a wide distribution that overlaps with U.S. and Canadian commercial fishing grounds in the western Atlantic as well as shipping traffic to and from numerous ports. Coastal areas frequented by right whales are heavily developed. North Atlantic right whales generally occur west of the Gulf Stream, from the southeast U.S. to Canada (e.g., Bay of Fundy and Scotian Shelf) (Kenney, 2002; Waring et al., 2003). They are not found in the Caribbean and have been recorded only rarely in the Gulf of Mexico. North Atlantic right whales are abundant in Cape Cod Bay between February and April (Hamilton and Mayo, 1990; Schevill et al., 1986; Watkins and Schevill, 1982) and in the Great South Channel in May and June (Kenney et al., 1986; Payne et al., 1990). North Atlantic right whales also frequent Stellwagen Bank and Jeffreys Ledge, as well as Canadian waters including the Bay of Fundy and Browns and Baccaro Banks, in the spring through fall. NMFS and Provincetown Center for Coastal Studies aerial surveys during springs of 1999-2006 found right whales along the Northern Edge of Georges Bank, in the Great South Channel, in Georges Basin, and in various locations in the Gulf of Maine including Cashes Ledge, Platts Bank and Wilkinson Basin (Waring et al., 2012). The distribution of right whales in summer and fall seems linked to the distribution of their principal zooplankton prey (Winn et al., 1986). Calving occurs in the winter months in coastal waters off of Georgia and Florida (Kraus et al., 1988). Mid-Atlantic waters are used as a migratory pathway from the spring and summer feeding/nursery areas to the winter calving grounds off the coast of Georgia and Florida.

North Atlantic right whales, like other baleen whales, winter in the lower latitudes where calving takes place, then migrate to higher latitudes for the spring, summer and fall. However, there is much about right whale movements and habitat that is still not fully understood. Telemetry data have shown lengthy and somewhat distant excursions into deep water off the continental shelf (Mate et al., 1997). Photo-ID data have also indicated excursions of animals as far as Newfoundland, the Labrador Basin, southeast of Greenland, and Norway (Knowlton et al., 1992). In the winter, only a minority of the known right whale population appears on the calving grounds. The winter distribution of the remaining right whales remains uncertain (Waring et al., 2006). Results from winter surveys and passive acoustic studies suggest that animals are dispersed among several areas, including Cape Cod Bay (Brown et al., 2002). During the winter of 1999/2000, significant numbers of right whales were recorded in the Charleston, SC area. Because survey efforts in the Mid-Atlantic have been limited, it is unknown whether this is typical or whether it represents a northern expansion of the normal winter range, perhaps due to unseasonably warm waters.

Other uncertainties also exist. For example, some female right whales have never been observed on the Georgia/Florida calving grounds but have been observed with a calf on the foraging grounds the following spring/summer, although this is becoming rarer (Best et al., 2001, Kraus et al., 2007). It is unknown whether these females are calving in an unidentified calving area or have been missed during surveys off of Florida and Georgia (Best et al., 2001). To a greater degree, some mature females that are observed in the Southeast U.S. calving grounds are not re-sighted in the Bay of Fundy. In fact, analysis based on both genetics and sighting histories of photographically identified individuals suggests that approximately one-third of the known population utilizes summer nursery areas other than the Bay of Fundy (Waring et al., 2006). This, along with the absence of some photo-identified whales from known habitats for months or

years at a time, suggests the presence of an unknown, offshore feeding ground (Kenney, 2002). Cole et al. (2013) identified a likely candidate mating are within the Gulf of Maine. Finally, the location of the North Atlantic right whale's mating area(s) is largely unknown. While behavior suggestive of mating is frequently observed on the foraging grounds, given the known length of gestation in other baleen whales, it is more likely that mating and conception occur in the winter (Kenney, 2002). However, as mentioned above, many of the mature whales in this population are not sighted on the known calving grounds off the southeastern U.S. during these months. Evaluation of this information, along with genetics data, suggests that two mating areas may exist with a somewhat different population composition (Best et al., 2001).

One emerging result of the genetic studies is the importance of obtaining biopsy samples from calves on the calving grounds. Only 60% of all known calves are seen with their mothers in summering areas, when their callosity patterns are stable enough to reliably make a photo-ID match later in life. The remaining 40% are not seen on a known summering ground. From 1980 to 2001, there were 64 calves born that were not sighted later with their mothers and thus, unavailable to provide age-specific mortality information (Frasier et al., 2007). An additional interpretation of paternity analyses is that the population size may be larger than previously thought. Fathers for only 45% of known calves have been genetically determined. However, genetic profiles were available for 69% of all photo-identified males (Frasier 2005). The conclusion was that the majority of these calves must have different fathers that cannot be accounted for by the unsampled males and the population of males must be larger (Frasier 2005); although this inference of additional animals that have never been photographed.

4.1.1.2 Life History and Reproductive Success

Kraus et al. (2001) have estimated the mean age at first calving for female right whales to be 9.53 (+/- 2.32) years (Reeves et al., 2001).[1] Calving interval rates, which averaged 3.7 years between 1980 and 1992, seemed to be increasing over time, although the trend was not statistically significant (p=0.083) (Knowlton et al., 1994). Mean calf production from 1993 to 2009 was 17.2. An updated analysis of calving intervals through the 1997/1998 season suggested that the mean calving interval had increased since 1992 from 3.67 years to more than 5 years, which is a significant trend (Kraus et al., 2001). An IWC workshop on status and trends of the North Atlantic right whale agreed that calving intervals had increased and that the reproduction rate was approximately half that reported from studied populations of southern right whales (Reeves et al., 2001). Analysis completed since that workshop found that in the most recent years, calving intervals were closer to three years (Kraus et al., 2007).

Between 1980 and 2000, a total of 222 right whale births were documented in the western North Atlantic. Seven of these 222 whales are known to have died. Due to low calf production in 1999 (four calves) and 2000 (one calf), in April 2000, the Northeast Fisheries Science Center brought together 35 scientists from a broad range of disciplines to identify factors potentially affecting reproduction dysfunction in North Atlantic right whales. At this workshop, five factors were considered as potential contributors to the declining reproductive success of North Atlantic right whales: (1) environmental contaminants/endocrine disrupters; (2) body

[1] The longevity of right whales is unknown.

condition/nutritional stress; (3) genetics; (4) infectious diseases; and (5) marine biotoxins. The workshop concluded that none of the five factors could be eliminated as possible contributors to the observed reproductive dysfunction. Furthermore, the workshop concluded that if calf production and recruitment do not recover from the low levels observed in recent years, the population of North Atlantic right whales is unlikely to recover, even if known anthropogenic causes of mortality are reduced to zero (Reeves et al., 2001).

Since 2000, there have been at least 240 right whale births through the 2010/2011 calving season (Waring et al., 2013). During the 2004 and 2005 calving seasons, three adult females were found dead with near-term fetuses (Waring et al., 2012).

4.1.1.3 Abundance

As is the case with most wild animals, an exact count of right whales in the Western North Atlantic cannot be obtained. However, abundance can be reasonably estimated as a result of extensive study of this population. The western North Atlantic minimum stock size is based on a census of individual whales identified using photo-identification techniques. The western North Atlantic population size was estimated to be at least 444 individuals in 2009 based on a census of individual whales identified using photo identification techniques. This value is a minimum and does not include animals that were alive prior to 2008, but not recorded in the individual sightings database as seen during 1 December 2008 to 21 October 2011. This number does include the 19 calves born in 2009 but not yet catalogued (Waring et al, 2013).

Previous estimates using the same method with the added assumption that whales seen within the previous seven years were still alive resulted in counts of 295 animals in 1992 (Knowlton et al., 1994) and 299 animals in 1998 (Kraus et al., 2001). An IWC workshop on status and trends of western North Atlantic right whales gave a minimum direct-count estimate of 263 whales alive in 1996 and noted that the true population was unlikely to be substantially greater than this (Best et al., 2001).

As is the case with other mammalian species, there is an interest in monitoring the number of females in the western North Atlantic right whale population since their numbers will affect the overall population trend. Participants at the 1999 IWC workshop reviewed the sex composition of this right whale population based on sighting and genetics data (Best et al., 2001). Of the 385 right whales presumed alive at the end of 1998, 157 were males, 153 were females, and 75 were of unknown sex (Best et al., 2001). Sightings data were also used to determine the number of presumably mature females (females known to be at least nine years old) in the population and the number of females observed with at least one calf. For the period 1980 to 1998, there were at least 90 (presumed living) females nine years old or older. Of these, 75 had produced a calf during that same period (Best et al., 2001; Kraus et al., 2001). As described above, the 2000/2001 and 2002/2003 calving seasons had relatively high calf production and included additional first time mothers. These potential gains have been offset, however, by continued losses to the population, including the deaths of mature females.

The 1999 IWC workshop participants also reviewed photo-ID data and modeling of right whale survival (Best et al., 2001). Despite differences in approach, all of the models indicated a

decline in right whale survival in the 1990s relative to the 1980s, with female survival, in particular, apparently affected (Best et al., 2001; Waring et al., 2006). In 2002, the NMFS Northeast Fisheries Science Center (NEFSC) hosted a workshop to review right whale population models and examine potential bias in the models and changes in the population trend based on new information collected in the late 1990s (Clapham et al., 2002). Three different models were used to explore right whale survivability and to address potential sources of bias. Although biases were identified that could negatively affect the results, all three modeling techniques resulted in the same conclusion: survival has continued to decline and the decline appears to be focused on females (Clapham et al., 2002).

An increase in mortality in 2004 and 2005 was cause for serious concern (Kraus et al., 2005). Calculations based on demographic data through 1999 (Fujiwara and Caswell 2001) indicated that this mortality rate increase would reduce population growth by approximately 10% per year (Kraus et al, 2005). Of these mortalities, six were adult females, three of which were carrying near-term fetuses. Furthermore, four of these females were just starting to bear calves, losing their complete lifetime reproductive potential (Waring et al., 2013).

Despite the preceding, examination of the minimum number alive population index calculated from the individual sightings database, as it existed on July 6, 2010, for the years 1990 through 2007, suggests a positive trend in population size. These data reveal a significant increase in the number of catalogued whales alive during this period, but with significant variation due to apparent losses exceeding gains during 1998-1999. Mean growth rate for the period was 2.4% (Waring et al., 2013).

PBR is the product of minimum population size, one-half the maximum productivity rate, and a "recovery" factor for endangered, depleted, threatened stocks, or stock of unknown status relative to OSP (MMPA Sec. 3. 16 U.S.C. 1362) (Wade and Angliss, 1997). The recovery factor for right whales is 0.10 because this species is listed as endangered under the ESA. The minimum population size is 444 and the maximum net productivity is 0.04; thus, PBR for the Western Atlantic stock of North Atlantic right whale is 0.9 (Waring et al., 2013).

4.1.1.4 Factors Affecting Survival

Some researchers have suggested that the population is affected by a decreased reproductive rate (Best et al., 2001; Kraus et al., 2001). As of 1999, only 70 percent of mature females (aged nine years or older) were known to have given birth (Best et al., 2001). An analysis of the age structure of this population suggests that it contains a smaller proportion of juvenile whales than expected (Hamilton et al., 1998; Best et al., 2001), which may reflect lowered recruitment and/or higher juvenile mortality. In addition, it is possible that the apparently low reproductive rate is due in part to an unstable age structure or to reproductive senescence on the part of some females. However, few data are available on either factor, and senescence has not been documented for any baleen whale (Waring et al., 2013). Several factors -- reduced genetic diversity, pollution, and nutritional stress -- have been considered to help explain an apparent decline in reproductive success (Best et al., 2001; Kraus et al., 2001):

- **Reduced Genetic Diversity**: Historically, the North Atlantic right whale was driven to near-extinction by 800 years of commercial hunting. The

size of the western North Atlantic population of right whales at the termination of whaling is unknown, but is generally believed to have been very small. Such an event may have resulted in a loss of genetic diversity which could affect the ability of the current population to successfully reproduce (i.e., decreased conceptions, increased abortions, and increased neonate mortality). Studies by Schaeff et al. (1997) and Malik et al. (2000) indicate that western North Atlantic right whales are less genetically diverse than southern right whales (Schaeff et al., 1997; Malik et al., 2000). However, several apparently healthy populations of cetaceans, such as sperm whales and pilot whales, have even lower genetic diversity than observed for western North Atlantic right whales (Best et al., 2001).

- **Pollution**: While contaminant studies have confirmed that right whales are exposed to and accumulate contaminants, researchers could not conclude that these contaminant loads were negatively affecting right whales since concentrations were lower than those found in marine mammals proven to be affected by PCBs and DDT (Weisbrod et al., 2000).

- **Nutritional Stress**: Although North Atlantic right whales have thinner blubber than right whales from the South Atlantic, there is no evidence at present to demonstrate that the decline in birth rate and increase in calving interval is related to a food shortage (Kenney, 2000). Experts at the 1999 IWC workshop pointed out that since *Calanus* sp. is the most common zooplankton in the North Atlantic and current right whale abundance is greatly below historical levels, food limitations do not seem to be a significant factor (Best et al., 2001). Nevertheless, a connection between right whale reproduction and environmental factors may yet be found. Modeling work by Caswell and Fujiwara suggests that the North Atlantic Oscillation (NAO), a naturally occurring climactic event, does affect the survival of mothers, the reproductive rate of mature females, and calf survival (Clapham et al., 2002). Further work is needed to assess the magnitude and manner in which the NAO may affect right whale reproductive success.

The small population size and low annual reproductive rate suggest that human sources of mortality may have a greater impact on right whale population growth rates than is the case for other whales (Waring et al., 2006). Ship strikes and fishing gear entanglements are the principal factors believed to be retarding growth and recovery of western North Atlantic right whales. Data collected from 1970 through 1999 indicate that anthropogenic interactions in the form of ship strikes and gear entanglements are responsible for a minimum of two-thirds of the confirmed and possible mortality of non-neonate right whales. Of the 45 right whale mortalities documented during this period, 16 were due to ship collisions and three were due to entanglement in fishing gear (there were also 13 neonate deaths and 13 deaths of non-calf animals from unknown causes). Based on the criteria developed by Knowlton and Kraus (2001), 56 additional serious injuries and mortalities from entanglement or ship strikes are believed to have occurred between 1970 and 1999: 25 from ship strikes and 31 from entanglement. Nineteen

were considered to be fatal interactions (16 ship strikes, three entanglements); ten were possibly fatal (two ship strikes, eight entanglements); and 27 were non-fatal (seven ship strikes, 20 entanglements) (Knowlton and Kraus, 2001). The population has continued to suffer losses that are attributed to ship strikes and fishing gear entanglements (Waring et al., 2003; Waring et al., 2006). From 2006 through 2010, 9 of 15 records of mortality or serious injury (including records from both U.S. and Canadian waters) involved entanglement or fishery interactions (Waring et al. 2013).

Scarification analysis also provides information on the number of right whales that have survived ship strikes and fishing gear entanglements. Based on photographs of catalogued animals from 1959 and 1989, Kraus (1990) estimated that 57 percent of right whales exhibited scars from entanglement and seven percent from ship strikes (propeller injuries) (Kraus, 1990). This work was updated by Hamilton et al. (1998) using data from 1935 through 1995 to estimate that 61.6 percent of right whales exhibit injuries caused by entanglement, and 6.4 percent exhibit signs of injury from vessel strikes. In an analysis of the scarification of right whales, 338 of 447 (75.6%) whales examined during 1980 to 2002 were scarred at least once by fishing gear (Knowlton et al., 2005). Further research using the North Atlantic Right Whale Catalog has indicated that annually between 14% and 51% of right whales are involved in entanglements (Knowlton et al., 2005). In addition, several whales have apparently been entangled on more than one occasion and some right whales that have been entangled were subsequently involved in ship strikes. Knowlton et al. (2003) found that 543 separate entanglement interactions documented between 1980 and 2000 involved 413 individual right whales. The number of entanglements per individual ranged from zero to five. Of the 413 right whales, 71.9 percent (297 right whales) showed signs of having been entangled. Nearly 35 percent (144 of 413) were entangled at least once and 0.9 percent (four animals) were entangled at least five times. Because some animals may drown or be killed immediately, the actual number of interactions is expected to be higher. Recent work from Knowlton et al. (2012) increased the time series from 1980 to 2009 and found that 82.9% of right whales have had at least one previous entanglement in gear. Fifty-nine percent of right whales had been entangled more than once. It would appear that there is a higher rate of entanglement among calves and juveniles. Of the 86 serious injury events that occurred from 1980-2009, 74 of these were whales of a known age. Fifty-one percent of these events occurred with calves and juveniles Decomposed and/or unexamined animals (e.g., carcasses reported but not retrieved or necropsied) represent “lost data,” some of which may relate to human impacts (Waring et al., 2006).

4.1.1.5 Behavior and Susceptibility to Entanglement

As mentioned previously, right whales are susceptible to entanglement in fishing gear. Johnson et al. (2005) noted that any part of the gear (buoy line, groundline, floatline, and surface system line) creates a risk for entanglement. Several aspects of right whale behavior may contribute to this high entanglement frequency.

Of 31 recorded right whale entanglement events examined between 1993 and 2002, 24 (77.4 percent) involved animals with gear in the mouth (some included other points of gear attachment on the body as well) and 16 (51.6 percent) were entangled only at the mouth (Johnson et al., 2005). This suggests that a large number of entanglements occur while right

whales feed, since open mouth behavior is generally associated with feeding only. Although the sample size was small for cases in which the point of gear attachment and the associated gear part could be examined, Johnson et al. (2005) reported that two out of three right whale floating groundline entanglements and six out of eight vertical line entanglements (buoy line and surface system lines) involved the mouth (note that some of these cases may have involved other body parts as well).[2] In addition, three buoy line entanglement events involved the tail; the entanglement of one of these animals additionally involved groundline.

Right whales feed by swimming continuously with their mouths open, filtering large amounts of water through their baleen and capturing zooplankton on the baleen's inner surface. A study of right whale foraging behavior in Cape Cod Bay conducted by Mayo and Marx (1990) revealed that right whales feeding at the surface had their mouths open for approximately 58 minutes of each hour. Also, feeding right whales exhibited increased turning behavior and a convoluted path once they had found a sufficiently dense patch of zooplankton on which to feed. This behavior differed significantly from that of traveling whales, that swam in relatively straight paths with their mouths closed. In addition, socializing whales (two or more whales at the surface occasionally making physical contact) exhibited even more twisted paths than feeding whales. Socializing was often associated with rolling and lifting the flippers above the water's surface, behaviors that may add to entanglement risk, especially from buoy line and surface system lines.

Goodyear (1996) studied well-known right whale feeding areas (Cape Cod/Massachusetts Bay, Great South Channel, and the Bay of Fundy) and reported that feeding behavior varies based on the location of prey. Right whales spend a substantial amount of time feeding below the surface in the Bay of Fundy, where no surface feeding activities were observed. In order to meet their metabolic needs, right whales must feed on dense aggregations of copepods. Right whales received most of their food energy (approximately 91.1 percent) during deep dives (average depth of 134 meters), with the remainder (approximately 9.9 percent) occurring through surface feeding. Right whales spend about one-third of their time surface feeding in the Cape Cod/Massachusetts Bay and Gulf of Maine areas, which may increase entanglement risk from buoy line and surface system lines during the times they visit these areas (December to May). While in the Great South Channel (April to June), right whales spend approximately 10 percent of the time feeding at the surface and 90 percent of the time feeding at lower depths.

4.1.2 Humpback Whale

The North Atlantic humpback whale (*Megaptera novaeangliae*) is listed as an endangered species under the ESA. A Recovery Plan has been published and is in effect (NMFS, 1991b).

[2] Not included in these numbers is one right whale that was entangled in both buoy line and groundline on the tail.

4.1.2.1 Range

In the western North Atlantic, humpback whales calve and mate in the West Indies during the winter and migrate to northern feeding areas during the summer months. Calves are recruited to the feeding grounds of their mothers in a practice referred to as maternal philopatry (Clapham and Mayo, 1987; Katona and Beard, 1990). In the Gulf of Maine, sightings are most frequent from mid-March through November between 41 degrees north and 43 degrees north, from the Great South Channel north along the outside of Cape Cod to Stellwagen Bank and Jeffreys Ledge, and peak in May and August (CETAP, 1982). Studies have matched 27 percent of the individuals on the Canadian Scotian Shelf to the Gulf of Maine population (Clapham et al., 2003) and one study identified a Gulf of Maine whale as far away as west Greenland (Katona and Beard, 1990). Small numbers of individuals may be present in New England waters year-round, including the waters of Stellwagen Bank (Clapham et al, 1993). They feed on a number of species of small schooling fishes, particularly sand lance, mackerel, and Atlantic herring, by targeting fish schools and filtering large amounts of water for their associated prey. Humpback whales have also been observed feeding on krill (Wynne and Schwartz, 1999).

In winter, humpback whales from different feeding areas mate and calve primarily in the West Indies, where spatial and genetic mixing among these groups occurs (Clapham et al., 1993; Katona and Beard, 1990; Palsboll et al., 1997; Stevick et al., 1998). Various papers have summarized information gathered from a catalogue of photographs of individuals from the western North Atlantic population of humpback whales (Clapham, 1992; Clapham and Mayo, 1990; Clapham et al., 1999; Barlow and Clapham, 1997). These photographs identified western North Atlantic humpbacks wintering in tropical breeding grounds in the Antilles, primarily on Silver and Navidad Banks, north of the Dominican Republic. The primary winter range also includes the Virgin Islands and Puerto Rico.

Humpback whales are assumed to use the Mid-Atlantic as a migratory pathway to and from the calving/mating grounds. The Mid-Atlantic may also be an important winter feeding area for juveniles. Since 1989, observations of juvenile humpbacks in the Mid-Atlantic have been increasing during the winter months, peaking from January through March (Swingle et al., 1993). Biologists theorize that non-reproductive animals may be establishing a winter feeding range in the Mid-Atlantic since they are not participating in reproductive behavior in the Caribbean (Barco et al., 2002). Swingle et al. (1993) identified a shift in distribution of juvenile humpback whales in the nearshore waters of Virginia, primarily in winter months. Identified whales using the Mid-Atlantic area were found to be residents of the Gulf of Maine and Atlantic Canada (Gulf of St. Lawrence and Newfoundland) feeding groups, suggesting a mixing of different feeding populations in the Mid-Atlantic region (Barco et al., 2002). Strandings of humpback whales have increased between New Jersey and Florida since 1985, consistent with the increase in Mid-Atlantic whale sightings. Strandings were most frequent from September through April in North Carolina and Virginia waters, and involved primarily juvenile humpback whales of no more than 11 meters in length (Wiley et al., 1995).

In early 1992, a major research program known as the Years of the North Atlantic Humpback (YoNAH)(Smith et al., 1999) was initiated. This was a large-scale, intensive study of humpback whales throughout almost their entire North Atlantic range, from the West Indies to

the Arctic. During two primary years of field work, photographs for individual identification and biopsy samples for genetic analysis were collected from summer feeding areas and from the breeding grounds in the West Indies. Additional samples were collected from certain areas in other years.

4.1.2.2 Life History and Reproductive Success

It is generally believed that copulation and calving take place on the winter range in the Greater and Lesser Antilles. The gestation period in humpback whales is 12 months and females give birth every two to three years, usually between December and May (Clapham and Mayo, 1987).

4.1.2.3 Abundance

Photographic mark-recapture analyses from the Years of the North Atlantic Humpback (YONAH) project gave an ocean-basin-wide population estimate of 11,570 for 1992/1993 (CV = 0.069, Stevick et al., 2001), and an additional genotype-based analysis yielded a similar but less precise estimate of 10,400 whales (CV=0.138)(Smith et al., 1999). This estimate is regarded as the best available estimate for the North Atlantic population, though the figure is considered negatively biased because YONAH sampling was not spatially representative in the feeding grounds (Waring et al., 2006). Researchers have used three approaches in their attempt to estimate the abundance for the Gulf of Maine stock: mark-recapture estimates, minimum population size, and line-transect estimates (Clapham et al., 2003). An abundance estimate of 847 animals (CV=0.55) was derived from a line-transect sighting survey conducted during August 2006 which covered 10,676 km of trackline from the 2000m depth contour on the southern edge of Georges Bank to the upper Bay of Fundy and to the Gulf of St. Lawrence. The most recent line-transect survey in 2011, which did not include the Scotian Shelf portion of the stock, produced an estimate of abundance for Gulf of Maine humpback whales of 331 animals (CV=0.48) with a resultant minimum population estimate for this stock of 228 animals. The line-transect based Nmin is unrealistic because at least 500 uniquely identifiable individual whales from the GOM stock were seen during the calendar year of that survey and the actual population would have been larger because re-sighting rates of GOM humpbacks have historically been <1.Using the minimum count from at least 2 years prior to the year of a stock assessment report allows time to resight whales known to be alive prior to and after the focal year. Thus the minimum population estimate is set to the 2008 mark-recapture based count of 823.

Modeling using data obtained from photographic mark-recapture studies estimates the growth rate of the Gulf of Maine feeding population at 6.5 percent (Barlow and Clapham, 1997). More recent studies have found lower growth rates of 0.0 percent to 4.0 percent, although these results may be a product of shifts in humpback distribution (Clapham et al., 2003). Current data suggest that the Gulf of Maine humpback whale stock is steadily increasing in size (Waring et al., 2012). With respect to the North Atlantic population overall, there are indications of increasing abundance. One study estimated a growth rate of 3.1 percent for the period from 1979 to 1993 (Stevick et al., 2001).

As noted, PBR is the product of minimum population size, one-half the maximum productivity rate, and a "recovery" factor (MMPA Sec. 3. 16 U.S.C. 1362) (Wade and Angliss, 1997). The minimum population size for the Gulf of Maine stock is 823 whales. The maximum productivity rate is 0.065. The "recovery" factor, which accounts for endangered, depleted, or threatened stocks, or stocks of unknown status relative to optimum sustainable population (OSP), is assumed to be 0.10 because the humpback whale is listed as endangered under the ESA. Thus, PBR for the Gulf of Maine humpback whale stock is 2.7 whales per year.

4.1.2.4 Factors Affecting Survival

Humpback whales, like other baleen whales, may be adversely affected by habitat degradation, habitat exclusion, acoustic trauma, harassment, or reduction in prey resources attributable to commercial fishing, coastal development, vessel traffic, and other influences. However, explicit evidence of these influences is limited. Changes in humpback distribution in the Gulf of Maine have been found to be associated with changes in herring, mackerel, and sand lance abundance associated with local fishing pressures (Payne et al., 1986). Likewise, there are strong indications that a mass mortality of humpback whales in the southern Gulf of Maine in 1987/1988 was the result of the consumption of mackerel whose livers contained high levels of a red-tide toxin (Geraci et al., 1989). It has been suggested that red tides are related to increased freshwater runoff from coastal development, but there are insufficient data to link these effects directly with humpback whale mortality (Clapham et al., 1999).

As is the case with other large whales, the major known sources of anthropogenic mortality and injury of humpback whales are commercial fishing gear entanglements and ship strikes. Sixty percent of Mid-Atlantic humpback whale mortalities that were closely investigated showed signs of entanglement or vessel collision (Wiley et al., 1995). From 2006 through 2010, there were at least 10 reports of mortalities as a result of collision with a vessel and 29 serious injuries and mortalities attributed to entanglement. Many carcasses also washed ashore or were spotted floating at sea for which the cause of death could not be determined. Based on photographs of the caudal peduncle of humpback whales, Robbins and Mattila (1999) estimated that at least 48 percent -- and possibly as many as 78 percent -- of the Gulf of Maine stock of humpback whales exhibit scarring caused by entanglement. Robbins (2009) later found that 64.9% of the North Atlantic population had entanglement scarring when first assessed in 2003, encountering new scarring at an annual rate of 12.1%. These estimates are based on sightings of free-swimming animals that initially survive the encounter. Because some whales may drown immediately, the actual number of interactions may be higher. Decomposed and/or unexamined animals (e.g., carcasses reported but not retrieved or necropsied) represent "lost data", some of which may relate to human impacts (Waring et al., 2006).

4.1.2.5 Behavior and Susceptibility to Entanglement

As mentioned previously, humpback whales are, like right whales, susceptible to entanglement in fishing gear. Johnson et al. (2005) noted that any part of the gear (buoy line, groundline, floatline, and surface system line) creates a risk for entanglement. Johnson et al. (2005) also reported that of the 30 humpback whale entanglements examined in the study, 16 (53

percent) involved entanglements in the tail region and 13 (43 percent) involved entanglements in the mouth (note that in both cases, some entanglements included other points of gear attachment on the body). Although the sample size was small for cases in which the point of gear attachment and the associated gear part could be examined, two out of two floating groundline entanglements and four out of seven buoy line entanglements involved the mouth.[3] In addition, five out of seven buoy line entanglements and three out of four gillnet floatline entanglements involved the tail (Johnson et al., 2005).[4]

Based on studies of humpback whale caudal peduncle scars, Robbins and Mattila (2000) reported that calves had a lower entanglement risk than yearlings, juveniles, and mature whales; the latter three maturational classes exhibited comparable levels of high probability scarring. Based on these data as well as evidence that animals acquire new injuries when mature, the authors concluded that actively feeding whales may be at greater risk of entanglement. In any case, juveniles seemed to be at the most risk, possibly due to their relative inexperience.

Humpback whales employ a variety of foraging techniques, which differ from right whale foraging behavior, but which may create entanglement risk (Hain et al., 1982 and Weinrich et al., 1992). One such technique is lunge feeding, in which the whale swims toward a patch of krill or small fish, then lunges into the patch with its mouth agape. The flippers may aid in concentrating the prey or in maneuvering. Another feeding method, called "flick-feeding," involves flexing the tail forward when the whale is just below the surface, which propels water over the whale's head, temporarily disorienting its prey. The whale then swims with its mouth open, through the wave it created. A third foraging strategy is bubble feeding, in which whales swim upwards, while blowing nets or clouds of bubbles, in a spiral under a concentration of prey. This creates a barrier through which the disoriented fish cannot escape. The whales then swim up through the bubble formation, engulfing their prey. These techniques demonstrate that humpback whales commonly use their mouths, flippers, and tails to aid in feeding. Thus, while foraging, all body parts are at risk of entanglement.

4.1.3 Fin Whale

In 1976, the IWC's Scientific Committee proposed seven stocks for North Atlantic fin whales (*Balaenoptera physalus*): (1) North Norway, (2) West Norway-Faroe Islands, (3) British Isles-Spain and Portugal, (4) East Greenland-Iceland, (5) West Greenland, (6) Newfoundland-Labrador, and (7) Nova Scotia (Perry et al., 1999). However, it is uncertain whether these boundaries define biologically isolated units (Waring et al., 2006).

The present IWC scheme defines the North Atlantic fin whale stock off the eastern coast of the U.S., north to Nova Scotia, and east to the southeastern coast of Newfoundland as a single stock (Donovan, 1991). However, information suggests some degree of separation within this

[3] Note that one humpback whale was entangled in both buoy line and groundline and was placed in both categories.

[4] Note that the entanglements in buoy line exceed the total of seven because some animals were entangled in multiple locations on their body (e.g., both the mouth and the tail).

population. A number of researchers have suggested the existence of fin whale subpopulations in the North Atlantic based on local depletions resulting from commercial whaling or genetics data (Mizroch and York, 1984; Bérubé et al., 1998). Photo identification studies in western North Atlantic feeding areas, particularly in Massachusetts Bay, have shown a high rate of annual return by fin whales, both within years and between years, suggesting some level of site fidelity (Seipt et al., 1990).

This particular stock is considered strategic because the fin whale is listed as endangered under the ESA. A final Recovery Plan for fin whales was published in July 2010.

4.1.3.1 Range

Fin whales inhabit a wide range of latitudes between 20 to 75 degrees north and 20 to 75 degrees south (Perry et al., 1999). Like right and humpback whales, fin whales are believed to use high latitude waters primarily for feeding, and low latitude waters for calving. However, evidence regarding where the majority of fin whales winter, calve, and mate is still scarce. Clark (1995) reported a general pattern of fin whale movements in the fall from the Labrador/Newfoundland region, south past Bermuda and into the West Indies, but neonate strandings along the U.S. Mid-Atlantic coast from October through January suggest the possibility of an offshore calving area (Clark, 1995; Hain et al., 1992).

Fin whales are common in waters of the U.S. EEZ principally from Cape Hatteras northward. Fin whales accounted for 46% of the large whales and 24% of all cetaceans sighted over the continental shelf during aerial surveys (CETAP 1982) between Cape Hatteras and Nova Scotia during 1978 to 1982. In this region, fin whales are probably the dominant large cetacean species during all seasons, having the largest standing stock, the largest food requirements, and therefore the largest impact on the ecosystem of any large cetacean species (Hain et al., 1992; Kenney et al. 1997). New England waters represent a major feeding ground for fin whales. There is site fidelity by females and perhaps some segregation by sexual, maturational or reproductive class in the feeding area (Agler et al., 1993).

The predominant prey of fin whales varies greatly in different areas depending on what is locally available (IWC, 1992). In the western North Atlantic, fin whales feed on a variety of small schooling fish (e.g., herring, capelin, and sand lance) as well as squid and planktonic crustaceans (Wynne and Schwartz, 1999). Results from the Navy's SOSUS program (Clark 1995) indicate a substantial deep-ocean distribution of fin whales. It is likely that fin whales occurring in the U.S. Atlantic EEZ undergo migrations into Canadian waters, open-ocean areas, and perhaps even subtropical or tropical regions (Waring et al., 2012).

4.1.3.2 Life History and Reproductive Success

Compared to humpback and right whales, relatively little is known about the life history of fin whales. Both males and females reach sexual maturity between five and fifteen years of age (Perry et al., 1999). Conception is believed to occur during a five-month period in the winter; following a 12-month gestation period, females give birth to a single calf.

The mean calving interval for fin whales is 2.7 years, with a range of between two and three years. Agler et al. (1993) found the gross annual reproductive rate (i.e., calves as a percentage of total population) of fin whales in the Gulf of Maine to be about eight percent during the 1980s. Sigurjonsson (1995) reported the range of pregnancy rates (i.e., percent of adult females pregnant in a given year) for the species as 36 percent to 47 percent.

4.1.3.3 Abundance

Various estimates have been provided to describe the current status of fin whales in western North Atlantic waters. An abundance estimate of 1,925 (CV=0.55) fin whales was derived from a line-transect sighting survey conducted between June 12 and August 4, 2004, by a ship and plane that surveyed 10,761 km of trackline in waters north of Maryland (Palka 2006). An abundance estimate of 2,269 (CV=0.37) fin whales was estimated from an aerial survey conducted in August 2006 which covered 10,676 km of trackline in the region from the southern edge of Georges Bank to the upper Bay of Fundy and to the entrance of the Gulf of St. Lawrence. An abundance estimate of 1,716 (CV=0.26) fin whales was generated from the Canadian trans North Atlantic Sighting Survey in July and August 2007. Finally, an abundance estimate of 2,235 (CV=0.36) fin whales was generated from a shipboard and aerial survey conducted during June - August 2011. The aerial portioned covered 6850 km of tracklines that were over waters from Massachusetts to New Brunswick, Canada (waters north of New Jersey and shallower than the 100-m depth contour, through the US and Canadian Gulf of Maine and up to and including the lower Bay of Fundy). The shipboard portioned covered 3811 km of tracklines that were in water offshore of North Carolina to Massachusetts (waters that were deeper than the 100-m depth contour out to beyond the US EEZ) (Waring et al., 2013). The best estimate of abundance for fin whales is 3,522 (CV=0.27), and the minimum population estimate for the western North Atlantic fin whale is 2,817 (Waring et al., 2013).

Information on the abundance and population structure of fin whales worldwide is limited. NMFS recognizes three fin whale stocks in the Pacific for the purposes of managing this species under the MMPA: Alaska (Northeast Pacific), California/Washington/Oregon, and Hawaii. Reliable estimates of current abundance for the entire Northeast Pacific fin whale stock are not available. Stock structure for fin whales in the southern hemisphere is unknown and there are no current estimates of abundance for southern hemisphere fin whales. Therefore, given the best available information, changes in the status of the North Atlantic fin whale population are considered likely to affect the overall survival and recovery of the species.

As noted, PBR is the product of minimum population size, one-half the maximum productivity rate, and a “recovery” factor (MMPA Sec. 3. 16 U.S.C. 1362). The minimum population size is 2,817, and the maximum productivity rate is 0.04, the default value for cetaceans. The “recovery” factor is assumed to be 0.10 because the fin whale is listed as endangered under the ESA. Thus, PBR for the western North Atlantic fin whale is 5.6 (Waring et al, 2013).

4.1.3.4 Factors Affecting Survival

Hunting of fin whales continued well into the 20th century. Fin whales were given total protection in the North Atlantic in 1987, with the exception of a subsistence whaling hunt for Greenland (Gambell, 1993; Caulfield, 1993). However, Iceland reported a catch of 136 whales in the 1988/89 and 1989/90 seasons, and has since ceased reporting fin whale kills to the IWC (Perry et al., 1999). In total, there have been 239 reported kills of fin whales from the North Atlantic from 1988 to 1995.

Like right whales and humpback whales, anthropogenic mortality of fin whales includes entanglement in commercial fishing gear and ship strikes. A review of the records of stranded, floating or injured fin whales for the period 2005 through 2009 on file at NMFS found two records with substantial evidenc of fishery interactions causing mortality, and two records resulting in serious injury (Henry et al., 2011). Within that same time period, nine records were found that had sufficient information to confirm the cause of death as collisions with vessels (Henry et al, 2011) Experts believe that fin whales are struck by large vessels more frequently than any other cetacean (Laist et al., 2001).

4.1.3.5 Behavior and Susceptibility to Entanglement

As discussed, fishing gear entanglements are a source of anthropogenic mortality to fin whales. Feeding behavior may be an important factor that contributes to the risk of entanglement.

Fin whales exhibit lunge feeding techniques near the ocean surface, similar to humpback whales. Fin whales typically approach a prey patch horizontally, sometimes rapidly turning or rolling on their side inside a prey patch (Watkins and Schevill, 1979). Fin whales have also been observed feeding below the surface and fairly close to the bottom in about 15 to 20 meters of water. Entanglement data from 1997 through 2003 indicate few records of fin whale entanglement events (Kenney and Hartley, 2001; Hartley et al., 2003; Whittigham et al., 2005a; Whittingham et al., 2005b) Based on this information, fin whales seem to encounter gear less often than right and humpback whales. This statement is also supported by fin whale catalogs curated by College of the Atlantic and the Center for Coastal Studies, both of which contain records identifying fin whales that lack entanglement-related scarring.

4.1.4 Minke Whale

The minke whale (*Balaenoptera acutorostrata*) is not listed as endangered or threatened under the ESA, although the species is protected under the MMPA. The total fishery-related mortality and serious injury for this stock does not exceed PBR (see below). Therefore, this is not considered a strategic stock.

4.1.4.1 Range

Minke whales off the eastern coast of the United States are considered to be part of the Canadian east coast population, which inhabits the area from the eastern half of Davis Strait south to the Gulf of Mexico. Spring and summer are times of relatively widespread and common occurrence, and during this time minke whales are most abundant in New England waters. During fall, there are fewer minke whales in New England waters, while during winter, the species seems to be largely absent (Waring et al., 2012). Records hint at a possible winter distribution in the West Indies and in mid-ocean south and east of Bermuda (Mitchell, 1991). As with several other cetacean species, the possibility of a deep-ocean component to distribution exists but remains unconfirmed.

4.1.4.2 Life History and Reproductive Success

Female minke whales reach sexual maturity between six and eight years of age (Waring et al., 2012). The calving interval is between 1 and 2 years, and calves are probably born during October to March after 10 to 11 months gestation and nursing lasts for less than six months (Waring et al., 2012).

4.1.4.3 Abundance

An abundance estimate of 2,591 (CV=0.81) minke whales was generated from a shipboard and aerial survey conducted during June-August 2011 (Palka 2012). The aerial portion that contributed to the abundance estimate covered 5,313 km of tracklines that were over waters waters north of New Jersey and shallower than the 100-m depth contour through the U.S. and Canadian Gulf of Maine, and up to and including the lower Bay of Fundy. The shipboard portion covered 3,107 km of tracklines that were in water offshore of North Carolina to Massachusetts (waters that were deeper than the 100-m depth contour out to beyond the U.S. EEZ). Both sighting platforms used a two-simultaneous team data collection procedure, which allows estimation of abundance corrected for perception bias of the detected species (Laake and Borchers, 2004). Estimation of the abundance was based on the independent observer approach assuming point independence (Laake and Borchers 2004) and calculated using the multiple covariate distance sampling (MCDS) option in the computer program Distance (version 6.0, release 2, Thomas *et al.* 2009). An abundance survey was conducted concurrently in the southern U.S. waters (from North Carolina to Florida). The abundance estimates from this southern survey are being calculated and are not available at this time. The best estimate of the population of Canadian east coast minke whales is 20,741 (CV=0.30). The minimum population estimate is 16,199 (Waring et al., 2013).

PBR is the product of minimum population size, one-half the maximum productivity rate, and a "recovery" factor. The minimum population size is 16,199 and the maximum productivity rate is 0.04, the default value for cetaceans. The recovery factor is assumed to be 0.5 because the stock is of unknown status. The PBR for this stock of minke whales is 162 (Waring et al., 2013). Data are insufficient for determining a population trend for this species.

4.1.4.4 Factors Affecting Survival

Human-caused mortality in minke whales is relatively low in comparison to PBR for the species (69). However, fishing-related entanglements do occur. The strandings and entanglement database, maintained by the New England Aquarium and NER NMFS include 36 records of minke whales within U.S. waters from 1975 to 1992. The gear includes unspecified fishing nets, unspecified cables or lines, fish traps, weirs, seines, gillnets, and lobster gear. The existing data can be summarized as follows:

- **U.S. Lobster Trap/Pot Fishery**: Annual mortalities attributed to the Gulf of Maine and Mid-Atlantic lobster trap/pot fishery, as determined from strandings and entanglement records that have been audited, were one in 1991, two in 1992, one in 1994, one in 1995, zero in 1996, one in 1997, zero from 1998 to 2001, 1 in 2002, and 0 in 2003 through 2009.

- **Northeast Bottom Trawl Fishery**: Fisheries observer data from the years 2005 through 2009 were pooled and bycatch rates for minke whales were estimated using a stratified ratio-estimator. Estimated bycatch rates from the pooled fisheries observer data were expanded by annual (2005-2009) fisheries data collected from mandatory vessel trip reports. The estimated annual mortality (CV in parentheses) attributed to this fishery was 4.78 (0.75) for 2005, 3.71 (0.73) for 2006, 3.28 (0.72) for 2007, 2.86 (0.73) for 2008, and 2.86 (0.75) for 2009. Annual average estimated minke whale mortality and serious injury from the Northeast bottom trawl fishery during 2005 to 2009 was 3.5 (CV=0.34) (Waring et al., 2012).

- **Other Fisheries**: The audited NER entanglement/strandings database contains records of minke whales seriously injured or killed as a result of entanglement. Mortalities and serious injuries that were likely a result of a U.S. fishery interaction with an unknown fishery include 3 in 1997, 3 in 1999, 1 in 2000, 2 in 2001, 1 in 2002, 5 in 2003, 2 in 2004, 0 in 2005 and 2006, 1 in 2007, 1 in 2008 and 0 in 2009. During 2005 to 2009, as determined from stranding and entanglement records, the minimum detected annual average mortality and serious injury is 0.8 minke whales in unknown U.S. fisheries (Waring et al., 2012).

From 1999 to 2003, no minke whales were reported to be involved in ship strike incidents. During 2004 and 2005, one minke whale mortality was attributed to ship strike in each year. During 2006 to 2008, no minke whale was confirmed struck by a ship. During 2009, one minke whale was confirmed dead due to a ship strike off New Jersey. Thus, during 2005 to 2009, as determined from stranding and entanglement records, the minimum detected annual average was 0.4 minke whales per year struck by ships (Waring et al., 2012)

In October 2003, an Unusual Mortality Event was declared involving minke whales and harbor seals along the coast of Maine; since then, the number of minke whale stranding reports has returned to normal. On October 11, 2009, the NOAA research vessel FSV Delaware II captured a minke whale during mid-water trawling operations associated with the 2009 Atlantic

Herring Acoustic survey. Although brought on deck, the animal was released alive and seemed to exhibit healthy behavior upon release (Waring et al., 2012).

4.1.4.5 Behavior and Susceptibility to Entanglement

Based on Waring et al. (2012), fishing gear entanglements account for the majority of the human-caused mortalities of minke whales. Like the other large whale species discussed, feeding behavior may be an important factor that contributes to entanglement risk.

Minke whales in the Northwest Atlantic typically feed on small schooling fish, such as sand lance, herring, cod, and mackerel (Ward, 1995). The whales may follow the movements of their prey and subsequently swim closer to shore and to heavy concentrations of fishing gear, making them more susceptible to entanglements. Studies conducted in the Bay of Fundy and Gulf of St. Lawrence indicated that minke whales feed by displaying surface lunges and rolling (Sears et al., 1981; Haycock and Mercer, 1984). In contrast, a study conducted on minke whales in Cape Cod Bay and Massachusetts Bay showed a lack of surface feeding behavior (Murphy, 1995). It is likely, however, that large whales may encounter gear in any part of the water column.

4.2 OVERVIEW OF AFFECTED FISHERIES

The environment affected by the ALWTRP regulations includes human communities, particularly communities whose social and economic fabric depends in part upon commercial fishing operations that must comply with ALWTRP requirements. The affected fisheries include the following:

- American lobster;
- multispecies gillnet fisheries;
- monkfish;
- spiny dogfish;
- shark;
- coastal migratory pelagic species fisheries;
- black sea bass;
- hagfish;
- red crab;
- scup;
- Jonah crab; and
- conch/whelk.

The sections below provide a baseline socioeconomic characterization of these fisheries, discussing fishery regulations, landings, revenue, numbers of permitted vessels, and key ports.

The final section briefly reviews several additional fisheries that are either very small, occur primarily in waters exempted from the ALWTRP, or for which only a minor segment of the vessels fish gear that is regulated under the ALWTRP.

The analyses presented in this section are based primarily on data collected and maintained by NMFS' Northeast Regional Office, Northeast Fisheries Science Center, and Southeast Regional Office. The data represent the best available information on east coast fishing activity. Below, we describe the databases used and highlight key sources of uncertainty in the analyses.

Northeast Dealer Data

In the Northeast, all seafood dealers handling the catch of federally-permitted vessels are required to hold dealer permits. While there is no fee for the permit, NMFS requires that dealers submit reports on the catch that they purchase. Specifically, a dealer must submit a report to NMFS for each fishing trip from which it purchased catch. Each dealer report includes information on:

- date of purchase;
- dealer name and address;
- dealer number;
- vessel name and permit number;
- pounds of each species, by market category, if applicable;
- value of each species, by market category, if applicable; and
- port landed.

Field office staff enter data into a coded form and send the data to the Northeast Fisheries Science Center to be incorporated into NMFS' larger Oracle database.

Analyses based on the dealer data warrant the following caveats:

- The purchase reports that seafood dealers submit to NMFS are not required to provide information on the gear used to land the catch reported. This information is deduced by each individual NMFS Field Office based on personal knowledge of the vessel's primary gear, the predominant species caught on the trip, or firsthand information from the fisherman. Therefore, breakouts of catch by gear type are subject to uncertainty.

- NMFS records only one gear type per dealer report. Thus, if two or more types of gear were used to catch the different species listed on the same dealer report, only the primary gear used on the trip will be noted and gear used to catch secondary species may be mischaracterized. This creates further uncertainty regarding gear types.

- Only dealers that hold Federal permits for handling certain species are required to submit dealer reports. Most notably, dealers who are only permitted to handle lobsters are exempt from any Federal reporting requirements. Thus, a considerable amount of lobster landings are reported through state data collection programs.

Southeast Logbook Data

NMFS requires all fishermen holding permits for Gulf of Mexico reef fish, South Atlantic snapper-grouper, King and Spanish mackerel, and shark to submit an individual report for every fishing trip made. Required information includes vessel data (such as vessel and crew characteristics), gear information, and catch information, including area fished and pounds landed. The characterization of affected fisheries relies on the logbook data to estimate the quantity of key southeast species caught with gear affected by ALWTRP regulations.[5]

The logbook data are subject to the following caveats:

- The logbook provides for the designation of only one type of gear per species for any one trip. If more than one type of gear is used for an individual species, some portion of the catch may be misattributed to the primary (recorded) gear used.

- The Southeast logbook program does not require fishermen to provide information on the value of their landings. Thus, this information is not available for southeast fisheries.

Permit Data

Fishermen are required to hold permits to fish for all federally managed species.[6] Permit requirements are included as part of the Fishery Management Plans developed by the Regional Fishery Management Councils and/or the Atlantic States Marine Fisheries Commission (ASMFC) and implemented by NMFS. Permit data are collected when fishermen apply to renew their fishing permits. NMFS' Northeast and Southeast Regional offices maintain separate permit databases.

The characterization of affected fisheries relies on permit data to identify the number of vessels that may target a particular species. The analysis distinguishes between commercial and

[5] This analysis refers to various types of gear as "affected by ALWTRP regulations." It is important to note, however, that not all of this gear is currently regulated under the ALWTRP. References to gear "affected by ALWTRP regulations" also include those types of gear potentially subject to the requirements of the ALWTRP, as specified by the regulatory alternatives discussed in Chapter 3.

[6] Fisheries may be managed by NMFS or by cooperative agreement between NMFS and the individual states.

charter/party permits using permit category data. Because fishermen may not actually target all species for which they hold permits, this approach may lead to an overestimate of the number of vessels actively involved in a fishery.

The analysis also relies on permit data to identify the number of vessels likely to fish with gear regulated under the ALWTRP. When applying for permits in the Northeast, fishermen are required to indicate what gear they are likely to use, although they are not restricted to the use of this gear (unless stipulated in the FMP). As a result, the permit database indicates the gear the permit holder intended to use when the permit application was filed, not necessarily the gear currently used. The degree of inaccuracy that stems from this data limitation is unknown, but is likely minor. In addition to the caveat above, it is important to note that permit applications can designate multiple types of gear (ranked by likelihood of use). For the purpose of characterizing affected fisheries, the analysis examines the distribution of permits by both primary gear (i.e., the gear that the permit holder is most likely to use) and all gear noted on the permit application. This approach provides a more accurate indication of the number of vessels that may be affected by ALWTRP requirements.

Permit records provided by the Southeast Regional Office do not itemize the types of gear permitted in the case of general species/fishery specific commercial permits; gear-specific permits are only required to fish for certain species with specific types of gear (e.g., to fish for king mackerel with a gillnet, one must hold a "Gillnet Endorsement for King Mackerel" permit). Thus, we are not able to estimate the number of fishermen permitted to fish with specific types of gear for fisheries that are primarily based in the Southeast.

4.2.1 American Lobster

The American lobster, *Homarus americanus*, is a bottom-dwelling, marine crustacean characterized by a shrimp-like body and ten legs, two of which are enlarged to serve as crushing and gripping appendages. American lobster are widely distributed over the continental shelf of North America. Inshore, they are most abundant from Maine through New Jersey, with abundance declining from northern to southern areas. Offshore, lobsters occur in U.S. waters from Maine through North Carolina (Atlantic States Marine Fisheries Commission, August 19, 2003). The inshore fishery dominates the industry, accounting for the highest percentage of lobster harvest (Atlantic States Marine Fisheries Commission, 2009).

Lobster growth and reproduction are linked to the molting cycle. Lobsters are encased in a hard external skeleton that provides body support and protection. Periodically, this skeleton is cast off to allow body size to increase and mating to take place. Eggs (7,000 to 80,000) are extruded and carried under the female's abdomen during a 9 to 11 month incubation period. The eggs hatch during late spring or early summer and the pelagic larvae undergo four molts before attaining adult characteristics and settling to the bottom. Lobsters typically reach legal, commercial size after five to seven growing seasons, or approximately 20 molting cycles.

Several types of gear are used in the American lobster fishery, but the majority of landings are associated with traps/pots. Between 1981 and 2007 traps/pots accounted for 98% of landings (Atlantic States Marine Fisheries Commission, 2009). Traps/pots may be set singly,

each having its own surface line and buoy, or in multiple-trap/pot "trawls" where the traps/pots are linked together by groundlines, with surface lines and buoys (or high flyers) at the first and/or last trap/pot. Traps/pots are further divided into general categories: inshore traps/pots and offshore traps/pots. Inshore trapping/potting typically involves smaller vessels fishing in coastal waters of depths up to 50 fathoms. In contrast, offshore, or deep-sea trapping/potting, usually involves much larger vessels using much heavier traps/pots and stronger line (Sainsbury, 1971).

Harvest levels of American lobster first prompted concern in the 1970s, resulting in the first Fishery Management Plan (FMP) for the American lobster, adopted in 1983. This first FMP called for fishing effort limits, minimum carapace size requirements, a prohibition on the possession of egg-bearing (or "berried") lobsters, and a prohibition on landing lobster parts. Since that time, a number of plan amendments have been developed for both state and Federal waters. In December 1999, NMFS issued a Final Rule (64 FR 68228) transferring the Federal lobster fishery regulations created under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (50 CFR Part 649) to the state-oriented Atlantic Coastal Fisheries Cooperative Management Act (Atlantic Coastal Act) (50 CFR Part 697). This decision recognized that the Federal FMP, which covered only Federal waters, was insufficient to address overfishing.

Currently, the inshore American lobster fishery is managed under Amendment 3 of the Atlantic States Marine Fisheries Commission's American Lobster Management Plan, as well as Addenda I through XVI to the plan. Adopted in December 1997, primary regulatory measures under Amendment 3 include carapace size limits, protection of ovigerous females, gear restrictions, and nominal effort control measures. In addition, Amendment 3 created seven lobster management areas (see Exhibit 4-1). These include the Inshore Gulf of Maine (Area 1), Inshore Southern New England (Area 2), Offshore Waters (Area 3), Inshore Northern Mid-Atlantic (Area 4), Inshore Southern Mid-Atlantic (Area 5), New York and Connecticut State Waters (Area 6), and Outer Cape Cod. Lobster Conservation Management Teams (LCMTs), composed of industry representatives, were formed for each management area. They advise the American Lobster Management Board and recommend changes to the management plan within their area.

Under Federal regulations for the American lobster fishery, Federal permits are limited access meaning that no new entrants are allowed, although permits may be bought, sold, and transferred to another vessel. In 2011, there were approximately 2,800 Federal lobster permits issued to vessels using trap/pot gear. The number of commercial trap/pot vessels that hold Federal permits for each lobster management area is presented in Exhibit 4-2.

Exhibit 4- 1

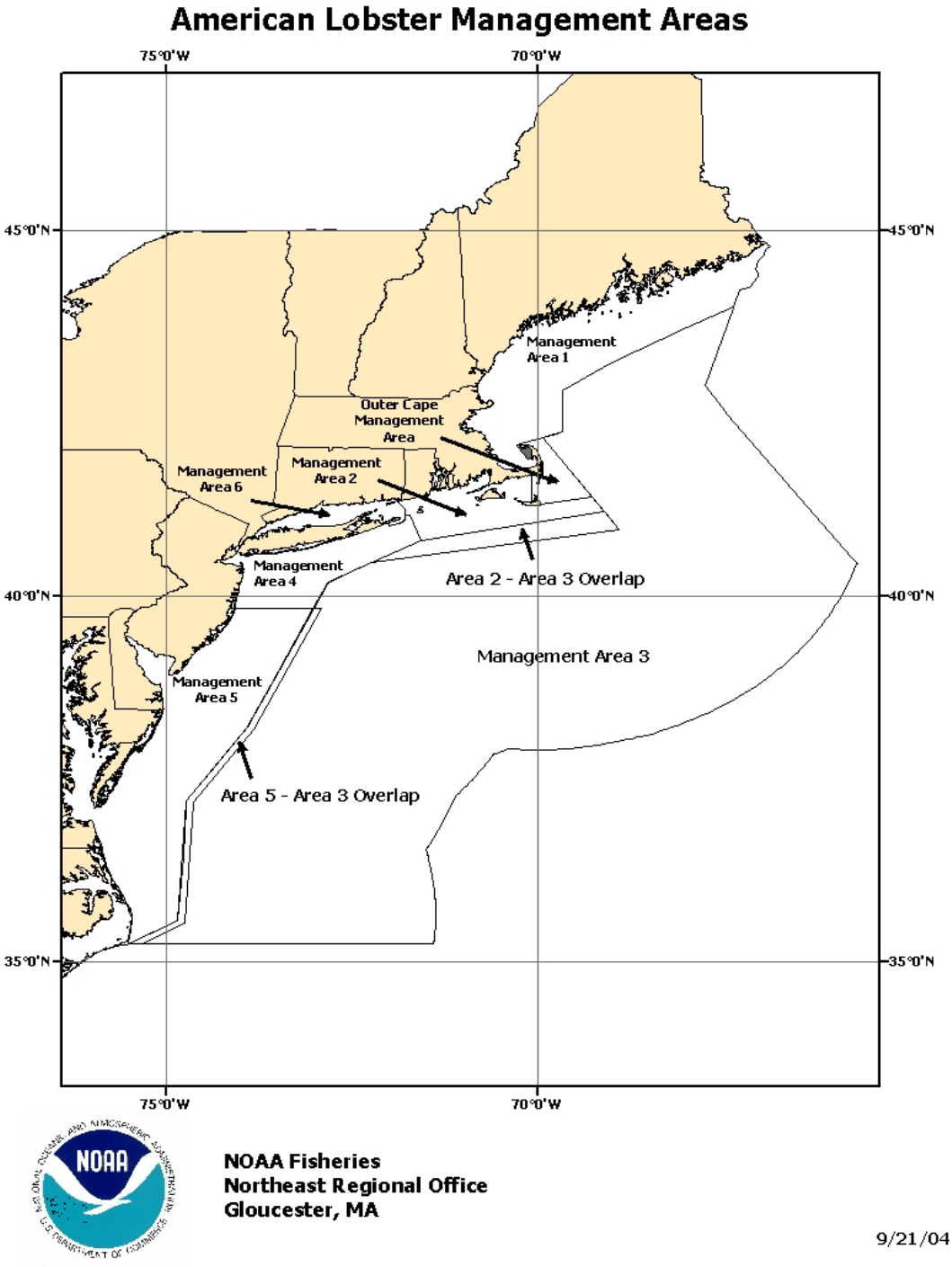

American Lobster Management Areas
75°0'W
70°0'W
45°0'N
40°0'N
35°0'N
Management Area 1
Outer Cape Management Area
Management Area 2
Management Area 6
Management Area 4
Area 2 - Area 3 Overlap
Management Area 3
Management Area 5
Area 5 - Area 3 Overlap
NOAA Fisheries
Northeast Regional Office
Gloucester, MA
9/21/04

Exhibit 4-2

FEDERAL COMMERCIAL LOBSTER TRAP/POT PERMITS BY LOBSTER MANAGEMENT AREA[1], FY2011[2]

Lobster Management Area	Number of Permits / Permitted Vessels
1	1,977
2	394
3	107
4	72
5	44
6	62
Outer Cape	145

Note:
[1] Note that a single permit is often issued for more than one area.
[2] Permits are issued by fishing year. 2011 extended from May 1, 2011, to April 30, 2012.

Source: Permit data provided by NMFS, Northeast Region, Fisheries Statistics Office.

Each state sets its own requirements for trapping/potting lobsters in state waters. State-permitted operators who wish to fish in Federal waters must also hold a Federal permit and abide by the more restrictive of the two (Federal or state) regulations.

Lobster has consistently ranked among the Atlantic coast's most commercially important species. In 2011, total revenue totaled more than $420 million up from approximately $400 million the year before. Additional detail on annual lobster landings and ex-vessel revenue is presented in Exhibit 4-3.

Exhibit 4-3

LANDINGS AND REVENUE FOR THE AMERICAN LOBSTER FISHERY: 2006 - 2011

Fishing Year	Landings (million lbs)	Revenue ($ millions)
2006	92.61	395.15
2007	78.37	354.99
2008	88.09	326.75
2009	98.22	303.32
2010	116.25	399.48
2011	126.46	423.79

Source: Dealer data provided by NMFS Northeast Region. Fisheries Statistics Office.

The greater abundance of lobster in northern waters is reflected in the distribution of landings by state. Maine consistently accounts for the greatest share of the lobster catch, with landings in 2011 of approximately 105 million pounds. Massachusetts, the second leading producer, had landings in 2011 of nearly 13 million pounds. Together, Maine and Massachusetts

accounted for about 94 percent of total national landings. Lobster landings and revenue by state for 2011 are presented in Exhibit 4-4.

Exhibit 4-4

LOBSTER LANDINGS AND REVENUE BY STATE: 2011

State	Landings (lbs)	Landings (% of Total)	Revenues ($)	Revenues (% of Total)
Maine	104,976,057	83.01%	$335,006,687	79.05%
Massachusetts	13,384,453	10.58%	$53,329,231	12.58%
New Hampshire	3,919,783	3.10%	$16,345,547	3.86%
Rhode Island	2,752,701	2.18%	$12,728,035	3.00%
New Jersey	626,019	0.50%	$2,766,736	0.65%
New York	572,579	0.45%	2,522,311	0.60%
Connecticut	163,887	0.13%	$815,830	0.19%
Maryland	39,790	0.03%	$184,865	0.04%
Virginia	12,878	0.01%	$62,525	0.01%
Delaware	8,880	0.01%	$23,464	0.01%
TOTAL	126,457,027	100.00%	$423,785,231	100.00%

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office

Exhibit 4-5 provides additional data on the distribution of lobstering activity, highlighting the top grossing ports for lobster in 2010. As shown, Maine ports account for a significant portion of the total lobster catch. However, most lobster is landed at smaller ports along the New England coast, rather than at a single dominant port.

Exhibit 4-5

LOBSTER LANDINGS VALUE BY PORT, FY2011[1]

Port	County	State	Total Value of all Landings ($)
Stonington	Hancock	ME	46,346,812
Rockland	Knox	ME	18,648,406
Vinalhaven	Knox	ME	16,691,032
Friendship	Knox	ME	14,525,366
Other Knox County Ports	Knox	ME	41,813,915
Other Ports			284,222,864
TOTAL			392,152,940

Notes:
[1] Ports are listed in descending order based on the value of total landings. The top five ports are presented in this exhibit.

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

4.2.2 Northeast Multispecies

The Northeast Multispecies Fishery Management Plan (FMP) governs commercial fishing in New England and Mid-Atlantic waters for fifteen species (and 24 stocks) of demersal fish. These species, which are listed in Exhibit 4-6, are grouped together under one FMP because the fish share common habitats and are often caught at the same time. They are present

in shallow coastal areas, deep waters, and ocean banks such as Georges and Stellwagen Banks. The majority of the commercial fishing activity targeting these species occurs in the Northeast, where cooler waters support a greater abundance of groundfish. For more information on each species regulated under the Multispecies FMP, including common and scientific names, a brief summary of key biological facts relevant to each species, commercial uses, and a drawing of a representative member of each species, see Appendix 4-B.

Exhibit 4-6

SPECIES/STOCKS MANAGED UNDER THE NORTHEAST MULTISPECIES FISHERY MANAGEMENT PLAN

Species	Associated Stocks
American plaice	One stock: distributed primarily in the Gulf of Maine.
Atlantic cod	Two stocks: Gulf of Maine cod and Georges Bank cod.
Atlantic halibut	One stock: distributed primarily in the Gulf of Maine and on Georges Bank.
Haddock	Two stocks: Gulf of Maine haddock and Georges Bank haddock.
Ocean pout	One stock: distributed throughout the region.
Offshore hake	One stock: distributed primarily offshore in southern New England and the Mid-Atlantic.
Pollock	One stock: distributed in the Gulf of Maine, Georges Bank, and southern New England regions.
Red hake (ling)	Two stocks: Gulf of Maine/northern Georges Bank red and southern Georges Bank/southern New England red.
Redfish	One stock: distributed primarily in the Gulf of Maine and southern Georges Bank.
Silver hake (whiting)	Two stocks: Gulf of Maine/northern Georges Bank whiting and southern Georges Bank/southern New England whiting.
White hake	One stock: distributed primarily in the Gulf of Maine and southern Georges Bank.
Windowpane flounder	Two stocks: Gulf of Maine/Georges Bank windowpane and southern New England/Mid-Atlantic windowpane.
Winter flounder	Three stocks: Gulf of Maine winter, Georges Bank winter, and southern New England/Mid-Atlantic winter.
Witch flounder	One stock: distributed primarily in the Gulf of Maine and on Georges Bank.
Yellowtail flounder	Three stocks: Georges Bank yellowtail, Cape Cod yellowtail, and southern New England/Middle Atlantic yellowtail.

Source: NEFMC, 2003a.

The Northeast Multispecies FMP was adopted in 1986 and has been modified by numerous amendments and framework adjustments. Management measures currently include a limited access permit system, gear restrictions, seasonal and full-time area closures, days-at-sea allocations, trip limits, minimum fish sizes, and reporting requirements. Framework Adjustment 46 went into effect September 14, 2011 (76 FR 56985), and Amendment 17 was proposed December 12, 2011 (76 FR 77200).

In 2011, 3,044 multispecies permits were issued. This includes active and inactive permits, as well as limited and open access permits. Open access permits include handgear, party/charter, scallop, multispecies 300-pound possession limit, and non-regulated multispecies (small mesh multispecies and halibut) permits. Most full-time commercial groundfish vessels hold limited access permits.

In 2011, 3,044 vessels possessed Northeast multispecies permits. Exhibit 4-7 presents the total number of permitted vessels, by type of gear and primary gear type, for all permit categories. The most prevalent primary gear type is "other gear" – which includes hand lines, rod and reel, harpoons, diving gear, and other unspecified types of gear – followed by bottom trawls. Only 204 vessels (6.7 percent) holding Northeast multispecies permits in 2011 indicated ALWTRP regulated gear (gillnets, traps/pots) as the primary gear (see shading).

Exhibit 4-7

PERMITTED NORTHEAST MULTISPECIES VESSELS, FY2011 [1]

	By All Gear		By Primary Gear	
Gear Name	**Number**	**% of Total**	**Number**	**% of Total**
Purse Seine	147	4.8%	10	0.3%
Beach Seine	139	4.6%	0	0.0%
Boat Seine	144	4.7%	2	0.1%
Bottom Trawls	1191	39.1%	1330	43.8%
Mid-Water Trawls	490	16.1%	9	0.3%
Other Trawls	441	14.5%	26	0.9%
Dredge	357	11.7%	399	13.1%
Gill/Entangling Nets[2]	749	24.6%	273	9.0%
Pots and Traps[2]	125	4.1%	38	1.3%
Longlines and Setlines	608	20.0%	107	3.5%
Other Gear [3]	2176	71.5%	2555	81.1%
ALL GEAR TYPES [4,5]	3044	100.0%	3038	100.0%

Notes:

[1] Permits are issued by fishing year. Fishing Year 2011 extended from May 1, 2011, to April 30, 2012.

[2] Shading indicates that ALWTRP regulated gear was identified as the primary gear.

[3] Includes hand lines, rod and reel, harpoons, diving gear, and other gear types.

[4] Number of vessels for each gear type will not sum to number of vessels for "all gear types" because vessels may be permitted to fish using multiple gear types.

[5] The number of vessels using all gear types should be the same for "All Gear" and for "Primary Gear." The small difference shown above is likely due to a coding irregularity in the original source data.

Source: Data provided by NMFS, Northeast Region, Fisheries Statistics Office.

A total of 81.5 million pounds of Multispecies FMP-regulated fish were landed in the Northeastern U.S. in 2011. Otter trawls were used to catch the greatest percentage of fish, roughly 55 percent (see Exhibit 4-8). Of the total landings, 8.9 million pounds (11 percent) were caught using gear that is subject to the requirements of the ALWTRP.

Exhibit 4-8

LANDINGS FOR THE NORTHEAST MULTISPECIES FISHERY BY GEAR TYPE, FY2011

Gear Type	Total Pounds Landed	Percent of Total Pounds Landed
Otter Trawl	45,073,177	55.32%
Unknown	25,431,214	31.21%
Fixed or Stake/Set Gillnet	8,903,578	10.93%
Botton Longline	1,125,599	1.38%
Dredge	364,636	0.45%
Other	573,629	0.70%
TOTAL	81,471,833	100.00%

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

As shown in Exhibit 4-9, the ex-vessel value of landings for species managed under the Northeast Multispecies FMP totaled $102.1 million in 2011. Approximately 13 percent of this revenue is attributable to fish caught with ALWTRP affected gear. More than 80 percent of the groundfish were landed at Massachusetts ports; significant landings are also reported for Portland, Maine and Point Judith, Rhode Island. The majority of landings in Portland, Maine are associated with ALWTRP affected gear, whereas ALWTRP affected gear accounts for a smaller share of landings in other ports.

Exhibit 4-9

VALUE OF LANDINGS FOR THE NORTHEAST MULTISPECIES FISHERY BY PORT, FY2011[1]

Port	County	State	Total Value of all Landings ($)	Total Value of Fish Caught with ALWTRP Affected Gear[2] ($)	Percent of Revenues Attributable to ALWTRP Affected Gear
New Bedford	Bristol	MA	34,458,874	69,545	0.20%
Gloucester	Essex	MA	30,845,347	4,793,206	15.54%
Boston	Suffolk	MA	12,312,595	0	0.00%
Portland	Cumberland	ME	3,875,629	2,230,898	57.56%
Point Judith	Washington	RI	3,292,454	3,824	0.12%
Other Ports			17,300,959	5,981,648	34.57%
TOTAL			102,085,858	13,079,121	12.81%

Notes:

1 Ports are listed in descending order based on the value of landings. The top five ports are presented in this exhibit.

2 Includes fixed gillnets (NEGEAR2=10), drift gillnets (11), mixed traps/pots (18), shrimp trap/pots (19), offshore lobster trap/pot (20), inshore lobster trap/pot (21), and crab trap/pots (30).

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

4.2.3 Monkfish

Monkfish (also called goosefish or anglerfish), *Lophius americanus,* occur from the southern and eastern Grand Banks (Newfoundland) and the northern Gulf of St. Lawrence to the east coast of Florida (to about 29°00′ N latitude), but are common only north of Cape Hatteras. Monkfish have been found in depths ranging from the tide line to 840 meters, although the greatest concentrations occur between 70 and 100 meters, and in deeper water at about 190 meters. Females live approximately 12 years and reach an average size of just over 100 centimeters, while males have rarely been found older than six years and reach lengths of approximately 90 centimeters.

The New England Fishery Management Council (NEFMC) and the Mid-Atlantic Fishery Management Council (MAFMC) work together to develop measures for management of the monkfish fishery in Federal waters under the Magnuson-Stevens Act. Regulations to implement the Monkfish FMP became effective, in part, in November 1999 (the remainder on May 1, 2000) and include separation of the management unit into two management areas (the Northern Fishery Management Area and the Southern Fishery Management Area), limited access vessel permits, dealer and operator permits, trip limits, days-at-sea (DAS) allocations, reporting requirements, and gear restrictions (including a limit on the number and length of gillnets fished, a gillnet tagging requirement, and a minimum mesh size for gillnets). The principal types of gear used in the commercial monkfish fishery are trawl and sink gillnet gear (see below); scallop dredge gear also contributes to landings.

In addition to measures promulgated under the FMP, operation of the gillnet sector of the monkfish fishery is further modified by management measures developed under the ALWTRP, the Harbor Porpoise Take Reduction Plan, and the ESA Final Rule for Large-Mesh Gillnet Fisheries. Cumulatively, these measures provide for additional gear restrictions and seasonal area closures to reduce interactions between monkfish (and other gillnet fisheries) and large whales, sea turtles, and harbor porpoise.

The management unit (over which permits are granted) for monkfish extends throughout the portion of its principal range in U.S. waters, from Maine to Cape Hatteras, North Carolina. The limited access program restricts participation in the monkfish fishery to those boats with sufficient landings during a qualification period. During 2011, 720 vessels qualified for monkfish limited access permits, and 1,824 vessels received incidental catch permits. Exhibit 4-10 presents the number of vessels permitted to fish monkfish, by gear type and primary gear type. The prevalent primary gear type among permitted vessels is the bottom trawl, followed by "other gear" and gill/entangling nets. A total of 479 vessels (approximately 18.9 percent) holding monkfish permits indicated an ALWTRP affected gear as their primary gear.

Exhibit 4-10

PERMITTED MONKFISH VESSELS, FY2011 [1]

Gear Name	By All Gear		By Primary Gear	
	Number	% of Total	Number	% of Total
Purse Seine	160	6.3%	10	0.4%
Beach Seine	152	6.0%	0	0.0%
Boat Seine	153	6.0%	1	0.0%
Bottom Trawls	1,436	56.8%	1031	40.8%
Mid-Water Trawls	631	25.0%	9	0.4%
Other Trawls	587	23.2%	23	0.9%
Dredge	745	29.5%	305	12.1%
Gill/Entangling Nets[2]	1,106	43.7%	432	17.1%
Pots and Traps[2]	131	5.2%	47	1.9%
Longlines and Setlines	609	24.1%	58	2.3%
Other Gear [3]	1,259	49.8%	612	24.2%
ALL GEAR TYPES [4,5]	2,529	100.0%	2,517	100.0%

Notes:

[1] Permits are issued by fishing year. Fishing year 2011 extended from May 1, 2011, to April 30, 2012. Permits are valid for the monkfish management unit, which extends from Maine to Cape Hatteras, North Carolina.

[2] Shading indicates that ALWTRP regulated gear was identified as the primary gear.

[3] Includes hand lines, rod and reel, harpoons, diving gear, and other gear types.

[4] Number of vessels for each gear type will not sum to number of vessels for "all gear types" because vessels may be permitted to fish using multiple gear types.

[5] The number of vessels using all gear types should be the same for "All Gear" and for "Primary Gear." The small difference shown above is likely due to a coding irregularity in the original source data.

Source: Data provided by NMFS, Northeast Region, Fisheries Statistics Office.

Roughly 10.6 million pounds of monkfish were landed in the Northeastern U.S. in 2011. Gillnets and trawls were used to catch the greatest percentage of monkfish, and they landed 62 percent and 19 percent of the annual yield, respectively (see Exhibit 4-11). Of the total landings, about 6.7 million pounds (about 62 percent) were caught using ALWTRP regulated gear (fixed and drift gillnets and trap/pots).

Exhibit 4-11

MONKFISH LANDINGS BY GEAR TYPE, 2011

Gear Type	Total Pounds Landed	Percent of Total Pounds Landed
Gillnets	6,655,626	62.37%
Trawls	2,012,995	18.86%
Wire Baskets	1,583,590	14.84%
Dredge	350,207	3.28%
Long Lines	46,979	0.44%
Hand Lines	7,986	0.07%
Pots and Traps	8,770	0.08%
Other Nets or Weirs	4,679	0.04%
Troll Lines	722	0.01%
Diving	2	0.00%
TOTAL	10,671,556	100.00%

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

The ex-vessel value of monkfish landings in the Northeast totaled approximately $26.2 million in 2011. Of this total, about 50 percent came from fish caught with ALWTRP affected gear. Exhibit 4-12 summarizes the top grossing ports for monkfish in 2011. As shown, landings are distributed among a variety of Northeastern ports. Vessels landing their catch at several of these ports, particularly Long Beach/Barnegat Light, New Jersey, depend heavily upon ALWTRP affected gear.

Exhibit 4-12

VALUE OF MONKFISH LANDINGS BY PORT, FY2011[1]

Port	County	State	Total Value of all Landings ($)	Total Value of Fish Caught with ALWTRP Affected Gear[2] ($)	Percent of Revenues Attributable to ALWTRP Affected Gear
New Bedford	Bristol	MA	5,435,764	1,513,547	27.84%
Gloucester	Essex	MA	3,731,414	556,797	14.92%
Point Judith	Washington	RI	2,623,599	685,823	26.14%
Long Beach/Barnegat Light	Ocean	NJ	2,419,738	2,293,980	94.80%
Boston	Suffolk	MA	2,017,109	0	0.00%
Other Ports			10,012,888	7,992,228	79.82%
TOTAL			26,240,512	13,042,375	49.70%

Notes:

1 Ports are listed in descending order based on the value of landings. The top five ports are presented in this exhibit.

2 Includes fixed gillnets (NEGEAR2=10), drift gillnets (11), mixed traps/pots (18), shrimp trap/pots (19), offshore lobster trap/pot (20), inshore lobster trap/pot (21), and crab trap/pots (30).

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

4.2.4 Spiny Dogfish

Spiny dogfish, *Squalus acanthias,* is a shark belonging to the class Chondrichthyes (cartilaginous fishes). They can be found on both sides of the Atlantic. In the Northwest Atlantic, they range from Florida to Labrador, but are most abundant from Nova Scotia to Cape Hatteras. The Northwest Atlantic stock tends to spend summer months in waters from Massachusetts to Canada and the remainder of the year entirely in U.S. waters. Spiny dogfish are landed in every state from Maine to North Carolina and in all months of the year. During the fall and winter months, spiny dogfish are taken principally in Mid-Atlantic waters and southward from New Jersey to North Carolina. During the spring and summer months, spiny dogfish are landed mainly in northern waters from New York to Maine (Atlantic States Marine Fisheries Commission, 2002).

The New England Fishery Management Council (NEFMC) and the Mid-Atlantic Fishery Management Council (MAFMC) work together to develop measures for management of the spiny dogfish fishery in Federal waters under the Magnuson-Stevens Act. Regulations to implement the Spiny Dogfish Fishery Management Plan (FMP) became effective February 2000, and include permitting requirements for vessels (open access permit), dealers, and vessel operators. The regulations implementing the FMP also require establishment of an annual commercial quota subdivided into two semi-annual periods. The FMP was modified in 2006 (Framework 1) to allow for annual specifications to remain in effect for up to 5 years. All spiny dogfish landed for a commercial purpose from Maine through Florida must be applied against the commercial quota, regardless of where the spiny dogfish were caught. The fishery is closed for the remainder of the quota period once the quota available for that period has been harvested. Since spiny dogfish are also commercially fished in state waters where the ASMFC has primary oversight, the ASMFC has developed an Interstate Fishery Management Plan (ISFMP) for spiny dogfish. That plan was approved in late 2002 and implemented by each state beginning May 1, 2003 (consistent with the start of the 2003 spiny dogfish fishing year under the Federal FMP).

Because of mortality rates, the Spiny Dogfish FMP initially contained a restrictive rebuilding schedule, limiting the harvest of dogfish until the stock is rebuilt. For the period from May 1, 2000, through April 30, 2002, the annual quota was set at 4 million pounds, with trip limits of 600 pounds and 300 pounds for quota periods I and II, respectively. In July 2005, however, ASMFC published a draft addendum to the spiny dogfish FMP. The addendum calls for a system under which quotas can be specified in any given year for up to 5 years, based on expectations of future stocks projected by the best information (ASMFC, 2005). This amendment was adopted in November 2005, and is now in effect.

Exhibit 4-13 presents the number of permitted vessels by gear type and primary gear. Approximately 2,743 vessels were permitted to fish for spiny dogfish in 2011. The most common primary gear type among permitted vessels is the bottom trawl, followed by "other gear" and gill/entangling nets. A total of 584 vessels (21.3 percent) holding spiny dogfish permits in 2011 indicated an ALWTRP affected gear (predominantly gillnets) as the primary gear (see shading).

Exhibit 4-13

PERMITTED SPINY DOGFISH VESSELS, FY2011 [1]

Gear Name	By All Gear		By Primary Gear	
	Number	% of Total	Number	% of Total
Purse Seine	172	6.3%	21	0.8%
Beach Seine	143	5.2%	0	0.0%
Boat Seine	153	5.6%	2	0.1%
Bottom Trawls	1,439	52.5%	1,076	39.4%
Mid-Water Trawls	698	25.4%	16	0.6%
Other Trawls	621	22.6%	35	1.3%
Dredge	561	20.5%	171	6.3%
Gill/Entangling Nets[2]	1,310	47.8%	553	20.2%
Pots and Traps[2]	119	4.3%	31	1.1%
Longlines and Setlines	811	29.6%	106	3.9%
Other Gear [3]	1,500	54.7%	726	26.6%
ALL GEAR TYPES [4,5]	2,743	100.0%	2,732	100.0%

Notes:

[1] Permits are issued by fishing year. Fishing year 2011 extended from May 1, 2011, to April 30, 2012.

[2] Shading indicates that ALWTRP regulated gear was identified as the primary gear.

[3] Includes hand lines, rod and reel, harpoons, diving gear, and other gear types.

[4] Number of vessels for each gear type will not sum to number of vessels for "all gear types" because vessels may be permitted to fish using multiple gear types.

[5] The number of vessels using all gear types should be the same for "All Gear" and for "Primary Gear." The small difference shown above is likely due to a coding irregularity within the original data source.

Source: Data provided by NMFS, Northeast Region, Fisheries Statistics Office.

A total of 20.9 million pounds of spiny dogfish were landed in the Northeastern U.S. in 2011. Gillnets were used to catch the greatest share of spiny dogfish at 69.5 percent (see Exhibit 4-14).

Exhibit 4-14

SPINY DOGFISH LANDINGS BY GEAR TYPE, 2012

Gear Type	Total Pounds Landed	Percent of Total Pounds Landed
Gillnets	14,528,128	69.52%
Trawls	2,165,523	10.36%
Other	1,449,149	6.93%
Bottom Longlines	1,429,224	6.84%
Handlines	972,179	4.65%
Pots and Traps	317,030	1.52%
Dredge	27,186	0.13%
Troll Lines	6,000	0.03%
Harpoon	1,500	0.01%
Vertical Longlines	600	0.00%
Floating Traps	20	0.00%
TOTAL	20,896,539	100.00%

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

The ex-vessel value of spiny dogfish landings in the Northeast totaled approximately $4.5 million in 2011. Of this total, 71 percent came from fish caught with an ALWTRP affected gear type. Exhibit 4-15 summarizes the top grossing ports for spiny dogfish in 2011. As shown, several Massachusetts ports dominate spiny dogfish landings.

Exhibit 4-15

VALUE OF SPINY DOGFISH LANDINGS BY PORT, FY2011[1]

Port	County	State	Total Value of all Landings ($)	Total Value of Fish Caught with ALWTRP Affected Gear[2] ($)	Percent of Revenues Attributable to ALWTRP Affected Gear
Gloucester	Essex	MA	570,141	431,888	75.75%
Chatham	Barnstable	MA	546,656	288,464	52.77%
Virginia Beach/Lynnhaven	City of Virginia Beach	VA	350,098	350,098	100.00%
New Bedford	Bristol	MA	301,707	205,866	68.23%
Ocean City	Worcester	MD	251,325	186,253	74.11%
Other Ports			2,443,720	1,705,106	69.78%
TOTAL			4,463,647	3,167,675	70.97%

Notes:

[1] Ports are listed in descending order based on the value of landings. The top five ports are presented in this exhibit.

[2] Includes fixed gillnets (NEGEAR2=10), drift gillnets (11), mixed traps/pots (18), shrimp trap/pots (19), offshore lobster trap/pot (20), inshore lobster trap/pot (21), and crab trap/pots (30).

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

4.2.5 The Directed Shark Gillnet Fishery

Sharks belong to the class Chondrichthyes (cartilaginous fishes), which also includes rays, skates, and deepwater chimaeras (ratfishes). There is great diversity in size, feeding habits, behavior, and reproduction among the 350 species of sharks. Shark habitat can be described in four broad categories: (1) coastal, (2) pelagic, (3) coastal-pelagic, and (4) deep-dwelling. Coastal species inhabit estuaries, the nearshore and waters of the continental shelves, e.g., blacktip, finetooth, bull, lemon, and sharpnose sharks (which are thought to enter wetland tidal creeks). Pelagic species, on the other hand, range widely in the upper zones of the oceans, often traveling over entire ocean basins. Examples include mako, blue, and oceanic whitetip sharks. Coastal-pelagic species are intermediate in that they occur both inshore and beyond the continental shelf, but have demonstrated mid-ocean or transoceanic movements. Sandbar, scalloped hammerhead, and dusky sharks are examples of this group. Deep-dwelling sharks, e.g., most cat sharks and gulper sharks, inhabit the dark, cold waters of the continental slopes and deeper waters of the ocean basins. For additional information on the life history and essential fish habitat of each shark species, see Chapters 5 and 6 of the Highly Migratory Species (HMS) FMP, and Chapter 10 of Amendment 1 to the HMS FMP.

There is extreme diversity in the more than 350 species of sharks found in the world's oceans. In the western Atlantic, 39 species are managed under the HMS FMP; the spiny dogfish is managed under the authority of the Atlantic States Marine Fisheries Commission as well as the New England and mid-Atlantic Fishery Management Councils. Based on a combination of ecology and fishery dynamics, the sharks included under the HMS FMP have been divided into four species groups for management purposes: (1) large coastal species, (2) small coastal species, (3) pelagic species, and (4) prohibited species. Exhibit 4-16 lists the shark species in each management group. Data on other species collectively categorized as 'deepwater and other sharks' (such as smooth dogfish and the catsharks) are collected, but those species are not actively managed at this time.

Exhibit 4-16

COMMON SHARK SPECIES, BY SHARK CLASS

Species Group	Common Name	Species
Large Coastal Sharks (LCS)	Sandbar	*Carcharhinus plumbeus*
	Silky	*Carcharhinus falciformis*
	Tiger	*Galeocerdo cuvier*
	Spinner	*Carcharhinus brevipinna*
	Blacktip	*Carcharhinus limbatus*
	Bull	*Carcharhinus leucas*
	Lemon	*Negaprion brevirostris*
	Nurse	*Ginglymostoma cirratum*
	Great hammerhead	*Sphyrna mokarran*
	Scalloped hammerhead	*Sphyrna lewini*
	Smooth hammerhead	*Sphyrna zygaena*
Small Coastal Sharks (SCS)	Atlantic sharpnose	*Rhizoprionodon terraenovae*
	Blacknose	*Carcharhinus acronotus*
	Bonnethead	*Sphyrna tiburo*
	Finetooth	*Carcharhinus isodon*
Pelagic Sharks	Blue	*Prionace glauca*
	Porbeagle	*Lamna nasus*
	Shortfin mako	*Isurus oxyrinchus*
	Thresher	*Alopias vulpinus*
	Oceanic whitetip	*Carcharhinus longimanus*
Prohibited Sharks	Sand tiger	*Odontaspis taurus*
	Bigeye sand tiger	*Odontaspis noronhai*
	Whale	*Rhincodon typus*
	Basking	*Cetorhinus maximus*
	White	*Carcharodon carcharias*
	Dusky	*Carcharhinus obscurus*
	Bignose	*Carcharhinus altimus*
	Galapagos	*Carcharhinus galapagenisis*
	Night	*Carcharhinus signatus*
	Caribbean reef	*Carcharhinus perezi*
	Narrowtooth	*Carcharhinus brachyurus*
	Caribbean sharpnose	*Rhizoprionodon porosus*
	Smalltail	*Carcharhinus porosus*
	Atlantic angel	*Squatina dumerili*
	Longfin mako	*Isurus paucus*
	Bigeye thresher	*Alopias superciliosus*
	Sevengill	*Heptranchias perlo*
	Sixgill	*Hexanchus griseus*
	Bigeye sixgill	*Hexanchus vitulus*

Source: Final Amendment 1 to the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks, NMFS, 2003.

Sharks were first managed in 1993 under NMFS' Fishery Management Plan (FMP) for Sharks of the Atlantic Ocean. This 1993 FMP was replaced in 1999 when NMFS published the final FMP for Atlantic Tunas, Swordfish and Sharks (also called the Highly Migratory Species (HMS) FMP). All Federal fisheries for Atlantic sharks, except spiny dogfish, are managed under the HMS FMP. The HMS FMP contains numerous measures to rebuild or prevent overfishing of Atlantic sharks in commercial and recreational fisheries, including permitting and reporting

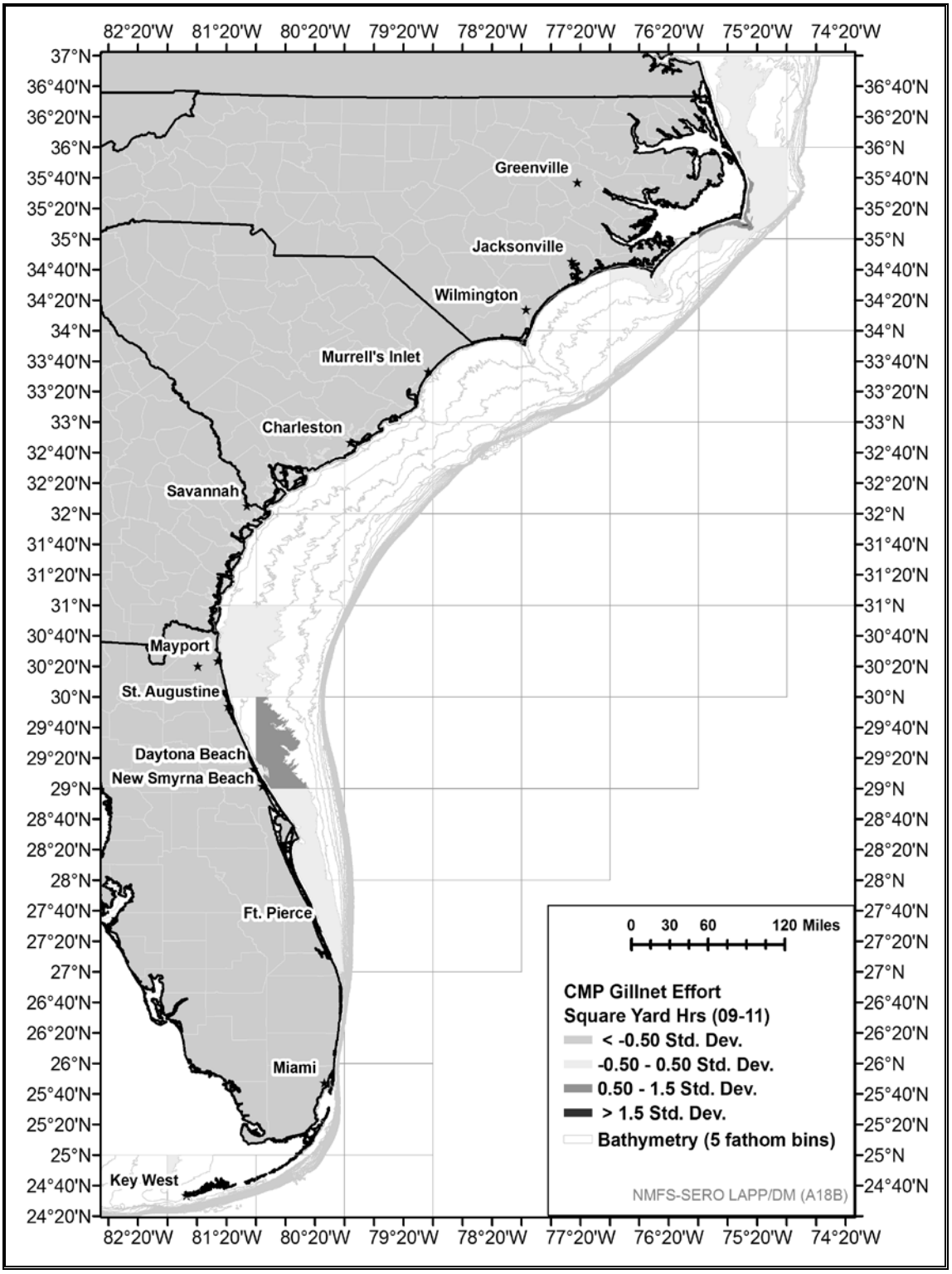
requirements, quotas for commercial landings, recreational bag limits, fishery closures, minimum size requirements, limited access, and a list of prohibited shark species. NMFS recently amended the HMS FMP, and published a final rule for Amendment I to the FMP in the Federal Register on December 24, 2003 (68 FR 74746). On April 15, 2004, NMFS published a notice in the Federal Register that identified NOAA-approved Vessel Monitoring System (VMS) devices for use by vessels participating in all of the Atlantic HMS fisheries and vessels participating in the Southeast shark gillnet fishery (69 FR 19979). A proposed rule to identify an effective date for the VMS requirement was published on May 18, 2004 (69 FR 28106). For more information about recent management actions to the HMS FMP see Chapter 9.4.3.5.

In the Atlantic Ocean, the directed shark fishery is most active in southern waters. As of October 2011, 412 vessels in southern waters possessed permits to fish for shark. Of these vessels, 199 had incidental shark permits, and 210 had directed shark permits. However, few permit holders have been known to use gillnet gear to target sharks in recent years.

4.2.6 Coastal Migratory Pelagic Species

Coastal migratory pelagic species are characterized as coastal, fast swimming, fast-growing, schooling fishes (Hoese, H.D. and Moore, R.H., 1977). Coastal migratory pelagic (CMP) fishes inhabiting waters off the southeastern United States include Spanish mackerel (*Scomberomorus maculatus*), king mackerel (*Scomberomorus cavalla*), cobia (*Rachycentron canadum*). These species range in coastal and continental shelf waters from the Northeastern United States to Brazil. King and Spanish mackerel are major target species of important commercial fisheries in Florida and North Carolina, as well as major target species for the private boat and charter boat recreational fishery in the South Atlantic region. Small amounts of king and Spanish mackerel are caught as an incidental catch or supplemental commercial target species off Georgia and South Carolina. Spanish mackerel is landed primarily by run-around gillnets, other gillnets, and to a lesser extent, hook and line. Most king mackerel landed in the South Atlantic region are taken by hook and line gear. Of the coastal pelagic species, only Spanish mackerel are caught in significant quantities by gillnets. Gillnet effort in the Southeast is typically between April and November with peaks in May and October. Exhibit 4-17 includes a gradation of gillnet effort in the Southeast Atlantic. Gillnet effort for coastal migratory pelagic species in the South Atlantic from 2009 -2011. Effort is calculated as a function of gillnet depth, length, and soak hours and displayed as standard deviations to protect data confidentiality. Orange coloration represents average effort whereas red is above average and yellow is below average. These data were compiled from the 2012 SEFSC Commercial Logbook and provided by the NMFS SERO LAPP/DM Branch.

Exhibit 4-17



The Fishery Management Plan (FMP) for Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic is jointly managed by the South Atlantic and Gulf of Mexico Fishery Management Councils (GMFMC and SAFMC, 1983). The plan was approved in 1982

and implemented by regulations effective in February of 1983. Current regulations implemented under the FMP address king and Spanish mackerel, and cobia. The present management regime for CMP species recognizes two migratory groups each of king mackerel, Spanish mackerel, and cobia: the Gulf Migratory Group and the Atlantic Migratory Group. King mackerel from these two groups seasonally mix on the East Coast of Florida.

Fishing season for CMP species is open year-round until the annual landings quota is filled. The Atlantic landings quotas are 3.88 million pounds for king mackerel; 3.13 million pounds for Spanish mackerel; and 125,712 for Cobia. An annual permit is required to fish under the commercial quota for king and Spanish mackerel. In 2005, NMFS adopted Amendment 15 to the FMP for Coastal Migratory Pelagic Resources. The amendment defined the limited access system and made permanent a previously adopted temporary moratorium on king mackerel permits. Amendment 17, adopted in 2006, established a limited access system on for-hire CMP permits in the Gulf. CMP for-hire permits in the South Atlantic and Spanish mackerel commercial permits are open access. A cobia commercial permit is currently under consideration. In 2011, Amendment 18, established annual catch limits, annual catch targets and accountability measures for all coastal pelagic species.

During the 2012 calendar year, 4,742 vessels possessed permits to fish for coastal migratory pelagic species. The breakdown of vessels by permit type is presented in Exhibit 4-18. Vessels may have multiple permits.

Exhibit 4-18

VESSELS POSSESSING ATLANTIC COASTAL MIGRATORY PELAGIC PERMITS IN 2012, BY PERMIT TYPE

Permit Type[1]	Number of Vessels
Charter Vessels	1,525
King Mackerel (commercial)	1,403
King Mackerel (gillnet endorsement)	22
Spanish Mackerel (commercial)	1,792

Notes:

[1] Permit data provided by the Southeast Regional Office does not itemize "gear types permitted" in the case of general species/fishery specific commercial permits. However, certain gear-specific permits are required to fish for certain species with specific gear types (e.g., in order to fish for king mackerel with a gillnet, one must hold a "Gillnet Endorsement for King Mackerel" permit).

Source: Data provided by NMFS, Southeast Region, Constituency Services Branch, 7 Aug 2012.

4.2.7 Black Sea Bass

Black sea bass, *Centropristris striata,* occur in coastal waters from the Gulf of Maine to the Florida Keys, but are more commonly found from Cape Cod, MA to Cape Canaveral, FL. Two distinct populations (northern and southern Atlantic) are thought to exist, with overlapping ranges; hence, they are managed separately (NMFS, 2003c). However, current genetic research

indicates that there is mixing between the two populations and they may indeed be one stock (South Atlantic Fishery Management Council, 2003).

Most black sea bass begin life as females and later transform into males, and most individuals (both sexes) attain sexual maturity by age three. Transformation from female to male generally occurs between ages two and five. Females are rarely found older than eight years (>35 cm), while males may live up to 15 years (>60 cm.) Black sea bass are omnivorous and generally feed on crustaceans, mollusks, echinoderms, fish, and plants.[7]

The discussion below provides a brief overview of the northern and southern black sea bass fisheries.

4.2.7.1 Northern Fishery

The northern portion of the black sea bass fishery, which extends from Cape Hatteras to the U.S./Canada border, is managed under the Summer Flounder, Scup, and Black Sea Bass FMP. Because the fishery occurs in both state and Federal waters, the Mid-Atlantic Fishery Management Council (MAFMC) and the Atlantic States Marine Fisheries Commission (ASMFC) jointly developed the FMP.[8] Amendment 13 to this FMP provided the most recent management changes for the black sea bass fishery. Amendment 13 established an annual (calendar year) coast-wide catch quota for the commercial black sea bass fishery to replace the quarterly quota allocation system, and allows vessels to retain their Northeast Region Black Sea Bass Permit during a Federal fishery closure. Framework Adjustment 5 to the FMP, adopted in 2004, allows for annual specifications to remain in effect for up to 3 years (69 FR 62818).

Current management measures under the FMP include mandatory vessel trip reporting and gear restrictions. The owner of a vessel issued a black sea bass moratorium permit must mark all traps/pots with the vessel's USCG number or state registration number. Traps/pots must also have an escape vent compliant with the options listed in 50 CFR 648.144 (b)(2), as well as a ghost panel affixed to the trap/pot with degradable fasteners and hinges (50 CFR 648.144(b)(3)).[9] There is no tagging program for this gear and no trap/pot limit.

The commercial fishery has limited-access restrictions. In the 2011 fishing year, 1,554 vessels held permits for this fishery (799 vessels held commercial moratorium permits; 819 vessels held charter party permits). Exhibit 4-19 presents the number of vessels permitted to fish for black sea bass in the Northeast in 2011, organized by intended gear. The most prevalent primary gear type is “other gear” – which includes hand lines, rod and reel, harpoons, diving gear, and other unspecified types of gear – followed by bottom trawls and traps/pots. A total of

[7] Status of Fisheries Resources off Northeastern United States-Black Sea Bass, viewed on http://www.nefsc.noaa.gov/sos/spsyn/og/seabass/ on 8/14/03.

[8] Black sea bass fished south of Cape Hatteras, NC are managed by the South Atlantic Fishery Management Council under the Snapper/Grouper FMP.

[9] Additional gear restrictions apply to otter trawl gear.

182 vessels (about 12 percent) holding black sea bass permits in the Northeast in 2011 indicated an ALWTRP affected gear type as their primary gear.

Exhibit 4-19

PERMITTED NORTHERN BLACK SEA BASS VESSELS, FY2011 [1]

	By All Gear		By Primary Gear	
Gear Name	**Number**	**% of Total**	**Number**	**% of Total**
Purse Seine	61	3.9%	7	0.5%
Beach Seine	58	3.7%	0	0.0%
Boat Seine	59	3.8%	0	0.0%
Bottom Trawls	551	35.5%	460	29.7%
Mid-Water Trawls	269	17.3%	7	0.5%
Other Trawls	227	14.6%	7	0.5%
Dredge	163	10.5%	26	1.7%
Gill/Entangling Nets[2]	274	17.6%	48	3.1%
Pots and Traps[2]	271	17.4%	134	8.6%
Longlines and Setlines	183	11.8%	7	0.5%
Other Gear [3]	1160	74.6%	865	55.8%
ALL GEAR TYPES [4,5]	1,554	100.0%	1,551	100.0%

Notes:

[1] Permits are issued by fishing year. Fishing year 2011 extended from May 1, 2011, to April 30, 2012.

[2] Shading indicates that ALWTRP regulated gear was identified as the primary gear.

[3] Includes hand lines, rod and reel, harpoons, diving gear, and other gear types.

[4] Number of vessels for each gear type will not sum to number of vessels for "all gear types" because vessels may be permitted to fish using multiple gear types.

[5] The number of vessels using all gear types should be the same for "All Gear" and for "Primary Gear." The small difference shown above is likely due to a coding irregularity within the original data source.

Source: Data provided by NMFS, Northeast Region, Fisheries Statistics Office.

Landings of black sea bass in the Northeastern U.S. totaled 1.7 million pounds in 2011. Trawls and pots and traps were used to catch the greatest percentage of black sea bass, about 37 percent and 26 percent, respectively (see Exhibit 4-20).

Exhibit 4-20

NORTHERN BLACK SEA BASS LANDINGS BY GEAR TYPE, 2011

Gear Type	Total Pounds Landed	Percent of Total Pounds Landed
Trawls	623,643	36.93%
Pots and Traps	446,343	26.43%
Other	393,232	23.28%
Hand Lines	164,766	9.76%
Dredge	35,924	2.13%
Gillnets	12,413	0.74%
Troll Lines	7,226	0.43%
Other Nets	3,999	0.24%
Long Lines	877	0.05%
Rakes and Hoes	309	0.02%
Harpoon	50	0.00%
Diving	38	0.00%
TOTAL	1,688,820	100.00%

Source: : Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

The ex-vessel value of northern black sea bass landings in the Northeast totaled $5.4 million in 2011. Exhibit 4-21 summarizes the top grossing ports for black sea bass in 2011. As shown, Mid-Atlantic ports predominate in the use of ALWTRP affected gear.

Exhibit 4-21

VALUE OF NORTHERN BLACK SEA BASS LANDINGS BY PORT, FY2011[1]

Port	County	State	Total Value of all Landings ($)	Total Value of Fish Caught with ALWTRP Affected Gear[2] ($)	Percent of Revenues Attributable to ALWTRP Affected Gear
Point Judith	Washington	RI	534,565	21,305	3.99%
Pt. Pleasant	Ocean	NJ	507,051	48,168	9.50%
Ocean City	Worcester	MD	454,439	144,990	31.91%
Hampton	City of Hampton	VA	401,502	0	0.00%
Cape May	Cape May	NJ	354,428	55,215	15.58%
Other Ports			3,078,499	942,654	30.62%
TOTAL			5,330,484	1,212,332	22.74%

Notes:

1 Ports are listed in descending order based on the value of landings. The top five ports are presented in this exhibit.

2 Includes fixed gillnets (NEGEAR2=10), drift gillnets (11), mixed traps/pots (18), shrimp trap/pots (19), offshore lobster trap/pot (20), inshore lobster trap/pot (21), and crab trap/pots (30).

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

4.2.7.2 Southern Fishery[10]

The southern portion of the black sea bass fishery, which extends from Cape Hatteras, NC to Cape Canaveral, FL, is managed under the South Atlantic Fishery Management Council's (SAFMC) Snapper-Grouper Fishery Management Plan (FMP). Amendment 8 of this FMP established a limited-entry system for the snapper-grouper fishery. Under this system, individuals who wish to obtain a snapper-grouper permit must buy two transferable vessel permits, one of which is then retired, thus reducing participation in the fishery and pressure on the resource. These regulations were implemented July 16, 1998.[11] In 2012, Amendment 18A to the Snapper-Grouper FMP further limited participation and effort in the black sea bass fishery by limiting permits to only those fishers with relatively strong landings history and limiting pots to only 35 per vessel annually. Furthermore, pots must now be brought back to shore at the conclusion of each trip, which are typically 24 hours or less. SAFMC published a proposed rule (Amendment 19) on July 2, 2013 (78 FR 39700) which, among other things, proposed a closure of the commercial black sea bass fishery in the South Atlantic from approximately Cape Hatteras, North Carolina to Cape Canaveral, Florida from November 1 through April 30. That closure became effective when the final rule was published on September 23, 2013 (78 FR 58249).

While black sea bass pots are allowed throughout the EEZ north of Cape Canaveral, Florida (except in special management zones), the majority of the pot fishery is concentrated off North Carolina and northern South Carolina and North Florida. Pots must include a panel or door with an opening equal to or larger than the interior end of the pot's funnel, and the hinges and fasteners of each panel or door must be made of a degradable material. The fishing year is June 1 through May 31 each year; however, commercial black sea bass pot fishing has not occurred during the November through April time period since December 2009. In those years, the annual catch limit was reached and fishing by the commercial sector was prohibited.

The southern black sea bass pot fishery, which is managed under the Snapper-Grouper FMP, is a limited access fishery with only 32 endorsements (see Exhibit 4-22).

[10] The information in this section is taken from the SAFMC Summary of the Trap/Pot Fisheries Currently Managed by the SAFMC, distributed at the ALWTRT Meeting held April 28-30, 2003, in Warwick, Rhode Island.

[11] M. Murphy, pers. comm., 2003.

Exhibit 4-22 BLACK SEA BASS POT ENDORSMENTS IN SOUTHEAST ATLANTIC (as of July, 2012)	
State	**Number of Tags**
Florida	7
Georgia	0
South Carolina	9
North Carolina	16
TOTAL	32
Source: Data provided by NMFS, Southeast Regional Office, Constituency Services Brach.	

In the Southern black sea bass fishery, fishermen are required to purchase a tag for each pot they possess. Fishermen are currently only allotted a maximum of 35 pots per vessel annually. The number of pot tags held gives a rough indication of fishing effort. As shown in Exhibit 4-23, fishermen in the Southeast Atlantic currently hold 885 black sea bass pot tags.

Exhibit 4-23 BLACK SEA BASS POT TAGS IN SOUTHEAST ATLANTIC (as of July, 2012)	
State	**Number of Tags**
Florida	140
Georgia	0
South Carolina	235
North Carolina	510
TOTAL	885
Source: Data provided by NMFS, Southeast Regional Office, Sustainable Fisheries Division.	

4.2.8 Hagfish

The Atlantic hagfish, *Myxine glutinosa*, is found along the Northeast coast from Newfoundland to North Carolina. Hagfish generally inhabit areas of soft bottom mud and prefer the cool temperatures found in deep water. They have a long eel-like form and can reach a maximum size of between one and a half and two feet. Hagfish are commonly referred to as "slime eels" or "slime hags" because of their ability to secrete copious amounts of slime from a series of mucous sacs on either side of their abdomen (NMFS, 1996).

The hagfish fishery developed out of a need to find other marketable species in areas where traditional commercial stocks have declined. A 1996 report submitted to NMFS examined the potential for establishing a hagfish fishery in the Northeastern U.S. and concluded that

adequate demand exists. This demand comes largely from Korea, where the eelskin is tanned into leather and the meat is used as a food source. Traditionally, the fish are exported whole and all processing takes place in Korea.

Currently, the Atlantic hagfish fishery is not regulated, but NMFS and the New England Fishery Management Council are moving toward developing a management scheme for the fishery. In April 2002, the Northeast Region Coordinating Council placed the review of a hagfish assessment on the agenda for the 37th Stock Assessment Review Committee (SARC) workshop.[12] On August 28, 2002 NMFS issued a Notice of Proposed Rulemaking that established a control date for potential future use in determining historical or traditional participation in the fishery.[13] In this notice, NMFS also stated its intent to encourage the New England Fishery Management Council to develop an FMP for the fishery, preventing overcapitalization and increased pressure on the stock due to a movement of vessels into the fishery. This action was motivated, in part, because scientific studies suggest that Atlantic hagfish are likely vulnerable to overfishing due to the low reproductive capacity of the species (67 FR 55191). As a result of these findings, NMFS and the Council are currently developing a hagfish FMP (NMFS, 2005).

Landings of hagfish in the Northeastern U.S. totaled 4.9 million pounds in 2010. [14] Nearly all hagfish were caught with fish pots, gear that may be affected by revisions to the ALWTRP. Exhibit 4-24 summarizes landings by the type of gear used.

Exhibit 4-24

NORTHERN HAGFISH LANDINGS BY GEAR TYPE, 2011

Gear Type	Total Pounds Landed	Percent of Total Pounds Landed
Pots and Traps	1,350,801	89.08%
Gill Nets	75,178	4.96%
Other Nets	74,961	4.94%
Dredge	15,532	1.02%
TOTAL	1,516,472	100.00%

Note:
[1] Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

The ex-vessel value of hagfish landings in the Northeast totaled approximately $1.1 million in 2011. Revenues were recorded in the ports of Portland, Maine and Gloucester, Massachusetts (see Exhibit 4-25).

[12] The SARC was tasked with determining stock size and abundance and estimating biological reference points. It met on June 4, 2003, and developed a set of research needs for the future; the final report on this meeting is forthcoming.

[13] The notice also served to deny the rulemaking requested in a Petition for Rulemaking asking NMFS to implement emergency measures to limit entry into the fishery, as emergency action was deemed unnecessary.

[14] Because hagfish is not traditionally considered a target species, reporting of hagfish landings is not required. Thus, landings reported are likely an underestimate of actual landings.

Exhibit 4-25

VALUE OF HAGFISH LANDINGS BY PORT, 2011

Port	County	State	Total Value of all Landings	Total Value of Fish Caught with ALWTRP Affected Gear[1]	Percent of Revenues Attributable to ALWTRP Affected Gear
Portland	Cumberland	ME	$791,733	$716,053	90.44%
Gloucester	Essex	MA	$337,092	$337,092	100.00%
TOTAL			$1,128,825	$1,053,145	93.30%

Notes:
[1] Includes fixed gillnets (NEGEAR2=10), drift gillnets (11), mixed traps/pots (18), shrimp trap/pots (19), offshore lobster trap/pot (20), inshore lobster trap/pot (21), and crab trap/pots (30).

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

4.2.9 Red Crab

Deep-sea Red Crab, *Chaceon quinquedens,* are distributed along the continental shelf edge and slope of the western Atlantic from Emerald Bank, Nova Scotia to the Gulf of Mexico. They are typically found at depths of 200 to 1,800 meters (700-5,900 feet), reach a maximum carapace width of 180 mm, and may live 15 years or more (Serchuk and Wigley, 1982).[15] Scientific research suggests that red crabs are most likely opportunistic omnivores due to the limited availability of food at the depths common for this species. The red crab fishery was previously limited by the high catch-related mortality of the crabs (and rapid degradation of the meat) and a lack of economical processing. Technological advances have made fishing for this species feasible and fresh and frozen meat from the crab is now sold commercially (NEFMC, 2002).

Vessels operating in the red crab fishery typically make 28 to 35 trips per year, with each trip lasting seven to ten days. Trips are limited in duration primarily by the hold capacity of the vessel and the need to keep the product fresh and alive. Vessels fish 500 to 600 traps/pots using 90 to 120 traps/pots per trawl. Traps/pots are allowed to soak 18 to 36 hours, with an average soaking time of 22.5 hours. The reported average trap/pot loss is just over 10 pots/traps per trip (NEFMC, 2002).

Management of the red crab fishery under the Magnuson-Stevens Act occurred relatively recently. Following a request from the New England Fishery Management Council (NEFMC), the Secretary of Commerce issued an emergency rule effective May 18, 2001 for management of the red crab fishery in the Exclusive Economic Zone (EEZ) from 35°15.3' North Latitude (the latitude of Cape Hatteras Light, NC) northward to the U.S./Canada border. An FMP was subsequently developed by the NEFMC, approved by NMFS and implemented by regulations effective October 20, 2002 (NEFMC, 2002). The regulations include measures to limit and

[15] Serchuk and Wigley (1982) suggest that precise information on life-span and growth rate for red crabs is lacking.

control effort in the fishery, including a limited-access permit system. Specifically, access to the fishery is limited to those fishermen who met specific criteria during a qualifying period; no additional entrants are allowed, but permits may be sold or otherwise transferred to a new owner. The regulations include gear restrictions and days-at-sea (DAS) allocations. Other measures include gear marking requirements, mandatory vessel trip reports, and a requirement for operator permits and dealer permits (NMFS, 2002a). Amendment 3 to the Red Crab FMP was published in 2011. This amendment established an annual catch limit and accountability measures, as well as removing the DAS system and implementing a hard total allowable landings limit.

Of the 1,539 vessels permitted to fish for red crab in 2011, 1,534 vessels had incidental bycatch permits and five had controlled access permits. Exhibit 4-26 presents a count of vessels permitted to fish for red crab by all intended gear types, and by primary gear type, within the red crab management unit. Traps/pots are the most prevalent primary gear, followed closely by bottom trawls, then dredges. In all, 852 vessels (55.1 percent) holding red crab permits in 2011 indicated an ALWTRP affected gear type as the primary gear. It is noteworthy that virtually all of the red crab sold commercially since 2011 was landed by the five vessels with controlled access permits; these vessels use trap/pot gear potentially subject to ALWTRP regulations.

Exhibit 4-26

NORTHEAST PERMITTED RED CRAB VESSELS, 2011[1]

	By All Gear		By Primary Gear	
Gear Name	**Number**	**% of Total**	**Number**	**% of Total**
Purse Seine	10	0.4%	2	0.1%
Beach Seine	7	0.3%	0	0.0%
Boat Seine	8	0.3%	0	0.0%
Bottom Trawls	586	23.5%	441	28.7%
Mid-Water Trawls	136	5.5%	5	0.3%
Other Trawls	109	4.4%	16	1.0%
Dredge	268	10.8%	121	7.9%
Gill/Entangling Nets[2]	193	7.0%	65	4.2%
Pots and Traps[2]	917	36.8%	787	51.2%
Longlines and Setlines	56	2.2%	1	0.1%
Other Gear [3]	201	8.1%	98	6.4%
ALL GEAR TYPES [4,5]	2,491	100.0%	1,536	100.0%

Notes:

[1] Permits are issued by fishing year. Fishing year 2011 extended from March 1, 2011, to February 28/29, 2012.

[2] Shading indicates that ALWTRP regulated gear was identified as the primary gear.

[3] Includes hand lines, rod and reel, harpoons, diving gear, and other gear types.

[4] Number of vessels for each gear type will not sum to number of vessels for "all gear types" because vessels may be permitted to fish using multiple gear types.

[5] The number of vessels using all gear types should be the same for "All Gear" and for "Primary Gear." The small difference shown above is likely due to a coding irregularity within the original data source.

Source: Data provided by NMFS, Northeast Region, Fisheries Statistics Office.

About 3.6 million pounds of red crab were landed in the Northeastern U.S. in fishing year 2011. All of the red crab landed was caught using pots/traps by the limited access fleet potentially subject to ALWTRP gear modification requirements (see Exhibit 4-27).

Exhibit 4-27

RED CRAB LANDINGS BY GEAR TYPE, 2011

Gear Type	Total Pounds Landed	Percent of Total Pounds Landed
Pots and Traps	3,597,848	100.00%
TOTAL	3,597,848	100.00%

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

The ex-vessel value of red crab landings in the Northeast totaled roughly $3.5 million in 2011. All of this revenue came from crab landed with ALWTRP affected gear. Exhibit 4-28 summarizes the top grossing ports for red crab in 2011. As shown, New Bedford, Massachusetts accounts for the vast majority of red crab revenues.

Exhibit 4-28

VALUE OF RED CRAB LANDINGS BY PORT, 2011

Port	County	State	Total Value of all Landings ($)	Total Value of Landings with ALWTRP Affected Gear[1] ($)	Percent of Revenues Attributable to ALWTRP Affected Gear
New Bedford	Bristol	MA	3,485,424	3,485,424	100.00%
Other Maryland	Not-Specified	MD	1,772	1,772	100.00%
Ocean City	Worcester	MD	488	488	100.00%
Other Atlantic	Atlantic	NJ	27	27	100.00%
TOTAL			3,487,711	3,487,711	100.00%

Notes:

[1] Includes fixed gillnets (NEGEAR2=10), drift gillnets (11), mixed traps/pots (18), shrimp trap/pots (19), offshore lobster trap/pot (20), inshore lobster trap/pot (21), and crab trap/pots (30).

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

4.2.10 Scup

Scup, *Stenotomus chrysops*, occur primarily in the Mid-Atlantic Bight from Cape Cod, MA to Cape Hatteras, NC. Seasonal migrations occur during spring and autumn. In summer, scup are common in inshore waters from Massachusetts to Virginia, while in winter, scup are found in offshore waters between Hudson Canyon and Cape Hatteras at depths ranging from 70 to 180 meters (38 to 98 fathoms). Sexual maturity is essentially complete by age three at a total length of 21 centimeters (8.3 inches), and spawning occurs during summer months. Scup attain a maximum fork length of about 40 centimeters (16 inches), and ages of up to 20 years have been reported. Tagging studies have indicated the possibility of two stocks, one in southern New

England waters and the other extending south from New Jersey. However, because the separation of stocks is not well-defined spatially, they are not considered distinct (NMFS, 2003b).

The fishery is now managed under the Mid-Atlantic Fishery Management Council's Summer Flounder, Scup, and Black Sea Bass FMP. Management within the commercial fishery includes a moratorium on commercial permits. Under this moratorium, only a limited number of permits are granted each year. Additional regulations include annually adjustable commercial trawl mesh and minimum size restrictions, and commercial catch quotas for the fishing year (January 1-December 31) (Mid-Atlantic Fishery Management Council, 2003). The scup season is divided into three periods: Winter I, Summer, and Winter II. The fishery is closed each period once the quota for the season has been reached. Also, Framework Adjustment 5 to the FMP, adopted in 2004, allows for annual specifications to remain in effect for up to 3 years (69 FR 62818).

In 2011, NMFS issued commercial moratorium permits for scup to 761 vessels and charter/party permits to 761 vessels. Both the commercial moratorium and charter/party permits have mandatory reporting requirements and are included in the Vessel Trip Reporting system. Exhibit 4-29 presents the number of vessels permitted to fish for scup in the Northeast under the authority of the Summer Flounder, Scup, and Black Sea Bass FMP, by intended gear type and intended primary gear type. The most prevalent primary gear type is "other gear" – which includes hand lines, rod and reel, harpoons, diving gear, and other unspecified types of gear – followed by bottom trawls. A total of 114 vessels (about 8 percent) holding scup permits in 2011 indicated an ALWTRP affected gear type as their primary gear.

Scup landings in the Northeastern U.S. totaled approximately 15 million pounds in 2011. Trawls and other or non-coded types of fishing gear were used to catch the greatest percentage of scup, with about 59 percent and 26 percent, respectively (see Exhibit 4-30).

The ex-vessel value of scup landings in the Northeast totaled $8.2 million in 2011. Exhibit 4-31 summarizes the top grossing ports for scup in 2011. As shown, Point Judith, Rhode Island is the leading port, although significant quantities of scup are also landed at other locations.

Exhibit 4-29

PERMITTED SCUP VESSELS, 2011 [1]

Gear Name	By All Gear		By Primary Gear	
	Number	% of Total	Number	% of Total
Purse Seine	70	4.8%	5	0.3%
Beach Seine	67	4.6%	0	0.0%
Boat Seine	70	4.8%	0	0.0%
Bottom Trawls	606	41.3%	523	35.8%
Mid-Water Trawls	285	19.4%	4	0.3%
Other Trawls	245	16.7%	8	0.5%
Dredge	171	11.7%	26	1.8%
Gill/Entangling Nets[2]	295	20.1%	57	3.9%
Pots and Traps[2]	152	10.4%	57	3.9%
Longlines and Setlines	189	12.9%	3	0.2%
Other Gear [3]	1,044	71.2%	788	53.9%
ALL GEAR TYPES [4,5]	1,466	100.0%	1,462	100.0%

Notes:

[1] Permits are issued by fishing year. Fishing year 2011 extended from May 1, 2011, to April 30, 2012.

[2] Shading indicates that ALWTRP regulated gear was identified as the primary gear.

[3] Includes hand lines, rod and reel, harpoons, diving gear, and other gear types.

[4] Number of vessels for each gear type will not sum to number of vessels for "all gear types" because vessels may be permitted to fish using multiple gear types.

[5] The number of vessels using all gear types should be the same for "All Gear" and for "Primary Gear." The small difference shown above is likely due to a coding irregularity within the original data source.

Source: Data provided by NMFS, Northeast Region, Fisheries Statistics Office.

Exhibit 4-30

SCUP LANDINGS BY GEAR TYPE, 2011

Gear Type	Total Pounds Landed	Percent of Total Pounds Landed
Trawls	8,835,763	58.78%
Other	3,899,385	25.94%
Pots and Traps	1,045,200	6.95%
Hand Lines	607,869	4.04%
Dredge	317,594	2.11%
Other Nets	255,831	1.70%
Troll Lines	44,784	0.30%
Gill Nets	21,927	0.15%
Long Lines	2,961	0.02%
By Hand	799	0.01%
Rakes	247	0.00%
TOTAL	15,032,360	100.00%

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office

Exhibit 4-31

VALUE OF SCUP LANDINGS BY PORT, 2011[1]

Port	County	State	Total Value of all Landings ($)	Total Value of Fish Caught with ALWTRP Affected Gear[2] ($)	Percent of Revenues Attributable to ALWTRP Affected Gear
Point Judith	Washington	RI	2,297,993	30,594	1.33%
Montauk	Suffolk	NY	1,613,316	63	0.00%
Pt. Pleasant	Ocean	NJ	590,225	0	0.00%
Little Compton	Newport	RI	536,355	120,021	22.38%
New Bedford	Bristol	MA	447,315	44,780	10.01%
Other Ports			2,665,153	209,811	7.87%
TOTAL			8,150,357	405,269	4.97%

Notes:

1 Ports are listed in descending order based on the value of landings. The top five ports are presented in this exhibit.

2 Includes fixed gillnets (NEGEAR2=10), drift gillnets (11), mixed traps/pots (18), shrimp trap/pots (19), offshore lobster trap/pot (20), inshore lobster trap/pot (21), and crab trap/pots (30).

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

4.2.11 Jonah Crab

Jonah crab, *Cancer borealis,* is currently an unregulated species in Federal waters. Little is known about the species' biology, distribution, and relative abundance. Also known as the Rock crab and the Bull crab, Jonah crabs are found from Florida to Nova Scotia, mainly in offshore, rocky habitats. Females obtain a carapace width of 100 mm after about eight years,

and males reach 130 mm in six to seven years. Individuals larger than 190 mm have not been observed, and it is believed that a terminal molt size might exist (NMFS, 2002b).

Jonah crab is a traditional by-catch of the Maine lobster fishery. Jonah crab landings have traditionally been used by lobstermen as a supplement to cover operating expenses. However, due to a recent increase in crab abundance and market demand, it has become profitable for lobstermen to target Jonah crab with lobster traps/pots during times of low lobster landings (generally in the spring). This in turn has led to interest in targeting Jonah crabs year round.

The State of Maine Department of Marine Resources (DMR) applied for an Exempted Fishing Permit that would allow lobstermen to fish experimental Jonah crab traps/pots in addition to their allotment of lobster traps/pots. This request triggered a Section 7 consultation that found that the proposed exemption would result in jeopardy to right whales. As a result, the action and consulting agencies developed a Reasonable and Prudent Alternative (RPA) and in September 2003, DMR was granted a one-year Exempted Fishing Permit. This permit allowed 100 participating fishermen to fish their permitted allotment of lobster traps/pots (in state and/or Federal waters) plus 200 experimental Jonah crab traps/pots in Federal waters of Federal Lobster Management Area 1.[16] Through this process, DMR hopes to demonstrate that the experimental Jonah crab trap/pot targets crabs, rather than lobster. If proven, DMR hopes to encourage NMFS and the ASMFC to revise the lobster regulations such that these modified traps/pots would not be considered lobster traps/pots and, consequently, would not be counted toward the fishermen's total allotment of traps/pots under the lobster regulations. The DMR expects that this study could lead to further examination of the potential sustainability and practicality of a directed Jonah crab fishery in the area.[17]

Landings of Jonah crab in the Northeastern U.S. totaled 11.4 million pounds in 2011.[18] Pots and traps were used to catch the 96 percent of Jonah crab landings during that year (see Exhibit 4-32).

[16] This permit was also granted for the previous fishing year.

[17] C. Wilson, pers. comm., 2003.

[18] Data on Jonah crab landings may be inaccurate due to frequent misidentification at the docks as well as substantial cash transactions that are never documented.

Exhibit 4-32

JONAH CRAB LANDINGS BY GEAR TYPE, 2011

Gear Type	Total Pounds Landed	Percent of Total Pounds Landed
Pots and Traps	10,972,241	96%
Other	157,516	1%
Dredge	123,135	1%
Trawls	101,458	1%
Hand Line	16,795	0%
Tongs	8,078	0%
Other Nets	3,573	0%
Gillnets	2,166	0%
By Hand	81	0%
Rakes	73	0%
TOTAL	11,385,116	100%

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

The ex-vessel value of Jonah crab landings in the Northeast totaled approximately $6.5 million in 2011. Exhibit 4-33 identifies the top grossing ports. As shown, three ports account for the majority of revenues: New Bedford, Massachusetts, Sandwich, Massachusetts, and Point Judith, Rhode Island.

Exhibit 4-33

VALUE OF JONAH CRAB LANDINGS BY PORT, 2011

Port	County	State	Total Value of all Landings ($)	Total Value of Landings with ALWTRP Affected Gear[2] ($)	Percent of Revenues Attributable to ALWTRP Affected Gear
New Bedford	Bristol	MA	1,528,324	1,468,552	96.09%
Point Judith	Washington	RI	1,081,392	1,027,745	95.04%
Sandwich	Barnstable	MA	830,838	821,991	98.94%
Fairhaven	Bristol	MA	736,654	636,791	86.44%
Newport	Newport	RI	730,703	721,253	98.71%
Other Ports			1,544,180	1,506,380	97.55%
TOTAL			6,452,091	6,182,712	95.82%

Notes:

[1] Ports are listed in descending order based on the value of landings. The top five ports are presented in this exhibit.

[2] Includes fixed gillnets (NEGEAR2=10), drift gillnets (11), mixed traps/pots (18), shrimp trap/pots (19), offshore lobster trap/pot (20), inshore lobster trap/pot (21), and crab trap/pots (30).

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

4.2.12 Conch and Whelk[19]

The Atlantic Coast whelk fishery targets two principal species, the knobbed whelk (*Busycon carica*) and the channeled whelk (*Busycon canaliculatum*).[20] Both species are found in temperate waters from Massachusetts to Florida. They range from seven to ten inches in length.

The commercial whelk pot fishery along the Atlantic coast runs from Massachusetts to the Carolinas. Whelk meat is sold for consumption in both the domestic and international (primarily Asian) markets; however, recent data suggest that the majority of whelk meat is used as bait in the horseshoe crab fishery.

Approximately 2.3 million pounds of whelk were landed in the Northeast U.S. in 2011. Whelk is primarily caught by potting or dredging, and these methods accounted for approximately 78 percent and 16 percent of the landings, respectively. Exhibit 4-34 illustrates the distribution of landings by gear type.

Exhibit 4-34

CONCH/WHELK LANDINGS BY GEAR TYPE, 2011

Gear Type	Total Pounds Landed	Percent of Total Pounds Landed
Pots and Traps	1,773,807	77.87%
Dredge	361,627	15.87%
Other	56,786	2.49%
Trawls	50,208	2.20%
Long lines	19,386	0.85%
Gillnets	7,793	0.34%
Rakes	5,122	0.22%
Hand Line	1,016	0.04%
Troll Line	888	0.04%
By Hand	687	0.03%
Other Nets	318	0.01%
Tongs	271	0.01%
Rakes	65	0.00%
TOTAL	2,277,974	100.00%

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

[19] Information in this section is taken from U.S. Fish and Wildlife Service, 2000.

[20] The knobbed and channeled whelk caught along the Atlantic coast are commonly referred to as "conch" in industry transactions.

The ex-vessel value of whelk landings in the Northeast totaled approximately $9.0 million in 2011. Exhibit 4-35 summarizes the top grossing ports for whelk in 2011. Landings are distributed among a variety of ports, with Edgarton and Harwichport, Massachusetts most prominent.

Exhibit 4-35

VALUE OF WHELK LANDINGS BY PORT, 2011[1]

Port	County	State	Total Value of all Landings ($)	Total Value of Landings with ALWTRP Affected Gear[2] ($)	Percent of Revenues Attributable to ALWTRP Affected Gear
Edgartown	Dukes	MA	719,706	719,700	100.00%
Harwichport	Barnstable	MA	649,716	647,707	99.69%
Oak Bluffs	Dukes	MA	628,820	628,820	100.00%
Bristol	Bristol	RI	483,956	479,170	99.01%
Nantucket	Nantucket	MA	391,023	0	0.00%
Other Ports			4,423,590	3,870,866	87.51%
TOTAL[3]			7,296,811	6,346,263	86.97%

Notes:

[1] Ports are listed in descending order based on the value of landings. The top five ports are presented in this exhibit.

[2] Includes fixed gillnets (NEGEAR2=10), drift gillnets (11), mixed traps/pots (18), shrimp trap/pots (19), offshore lobster trap/pot (20), inshore lobster trap/pot (21), and crab trap/pots (30).

[3] The dealer data do not assign approximately $1.7 million in ex-vessel revenue to a specific port. Total ex-vessel for the whelk fishery is approximately $8,978,147.

Source: Dealer data provided by NMFS, Northeast Region, Fisheries Statistics Office.

4.2.13 Other Affected Fisheries

The gear modifications required by the ALWTRP will affect all fisheries that use gillnets or traps/pots. The previous sections discuss fisheries that rely heavily on such gear and thus are most likely to be affected by changes in ALWTRP requirements. Other trap/pot fisheries that may be affected to a lesser extent by changes in ALWTRP regulations include the fisheries for Northern shrimp (Maine), blue crab, rock crab, catfish, tautog, cod, haddock, pollock, redfish, white hake, and American eel. Some of these trap/pot fisheries are small and primarily recreational (e.g., tautog). Others are commercially significant, but either make limited use of affected trap/pot gear (e.g., Northern shrimp, cod) or occur primarily in coastal or estuarine waters not covered by the ALWTRP (e.g., blue crab, American eel). As noted, Appendix 4-A provides a complete listing of the species landed using trap/pot gear.

Other potentially affected gillnet fisheries include Atlantic croaker, Atlantic mackerel, black drum, bluefish, bonito, herring, jack crevalle, menhaden, pompano, shad, skate, spot, striped bass, sturgeon, weakfish, white perch, Southern Kingfish (whiting), and yellow perch. Catch of these species by ALWTRP affected gear types is relatively small. However, to the extent that these species are caught with ALWTRP affected gear in ALWTRP regulated areas, and are part of a Category I or II fishery as designated by the List of Fisheries, fishermen may be affected by the ALWTRP.

The total ex-vessel revenue associated with ALWTRP gear used in all the affected fisheries is approximately $462 million.

4.3 OTHER AFFECTED SPECIES

The ALWTRP may also benefit other protected species that inhabit the same waters as Atlantic large whales. Evidence suggests that some of these species can become entangled in fishing gear; therefore, this risk may be affected by changes in ALWTRP requirements. This section discusses the life cycle and abundance of each species and briefly reviews threats to each species' survival, including interaction with commercial fishing gear. Chapter 5 provides more detailed information on the entanglement risk these species face, and the potential risk reduction offered by the regulatory alternatives under consideration.

The discussion below is divided into two categories: (1) species not likely to be affected by changes in ALWTRP requirements; and (2) species potentially affected by changes in ALWTRP requirements. Exhibit 4-36 summarizes the species of interest and their current status under the ESA or MMPA.

Exhibit 4-36

OTHER SPECIES POTENTIALLY AFFECTED BY ALWTRP MODIFICATIONS

Potential Effect	Category	Species	Status
Not Likely to Be Affected	Fish	Atlantic Salmon	Endangered
		Shortnose Sturgeon	Endangered
	Birds	Piping Plover	Endangered
		Roseate Tern	Endangered
Potentially Affected	Whales	Blue Whale	Endangered
		Brydes Whale	Protected
		Sei Whale	Endangered
		Sperm Whale	Endangered
	Fish	Atlantic Sturgeon	New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs as "endangered," and the Gulf of Maine DPS as "threatened"
	Porpoises and Dolphins	Harbor Porpoise	Protected
		WNA Coastal Bottlenose Dolphin	Protected
		Atlantic White-Sided Dolphin	Protected
		Risso's Dolphin	Protected
		Spotted Dolphin	Protected
		Striped Dolphin	Protected
		Pilot Whale	Protected
		Offshore Bottlenose Dolphin	Protected
		Common Dolphin	Protected
	Seals	Harbor Seal	Protected
		Gray Seal	Protected
		Harp Seal	Protected
	Turtles	Kemp's Ridley Sea Turtle	Endangered
		Loggerhead Sea Turtle	Threatened
		Leatherback Sea Turtle	Endangered
		Green Sea Turtle	Endangered
		Hawksbill Sea Turtle	Endangered
		Olive Ridley Sea Turtle	Threatened

4.3.1 Species Not Likely to Be Affected

Several endangered or protected species are found in waters regulated under the ALWTRP but are not likely to be entangled in trap/pot or gillnet gear managed by the Plan. These species are discussed briefly below.

4.3.1.1 Atlantic Salmon

At one time, Atlantic salmon (*Salmo salar*) distinct population segments (DPSs) probably existed in Long Island Sound and Central New England.[21] Today, the only remaining U.S. Atlantic salmon DPS is in the Gulf of Maine. The Gulf of Maine DPS is comprised of all anadromous Atlantic salmon whose freshwater range occurs in watersheds from the Androscoggin northward to the Dennys (Fay et al., 2006). The Gulf of Maine (GOM) Distinct Population Segment (DPS) of anadromous Atlantic salmon was initially listed by the USFWS and NMFS (collectively, the Services) as an endangered species on November 17, 2000 (65 FR 69459). A subsequent listing as an endangered species by the Services (74 FR 29344; June 19, 2009) included an expanded range for the GOM DPS of Atlantic salmon.

Atlantic salmon spawn in fresh water in the early autumn. The fertilized eggs remain in gravel on the stream bottom until spring, when they hatch and small fish called "fry" emerge. Fry quickly develop into "parr," a two- to three-inch-long fish that remains in freshwater. In New England rivers, it takes parr two to three years to grow large enough to develop into "smolts." In the smolt stage (approximately six inches long), the young salmon migrate downstream to the ocean. Less is known about the animal's saltwater life, but tagging studies have shown that young salmon migrate as far north as the Labrador Sea during their first summer in the ocean. After their first winter at sea, some of the salmon become sexually mature and return to their natal rivers to spawn. These are referred to as "one seawinter salmon" or "grilse," and are much more common among Canadian stocks than among the salmon in Maine rivers. Salmon that remain at sea for a second winter to feed in the coastal waters of Canada and Greenland grow to approximately 30 inches in length and eight to 15 pounds. These salmon can return from the ocean anytime from spring through fall, but the peak "run" is in June. Spawning takes place from late October through November. Some salmon return to sea immediately after spawning, but most (80 percent) spend the winter in the stream and migrate back to the ocean in the spring.

Historically, two seawinter fish were caught in commercial gillnet fisheries off Nova Scotia, Newfoundland, Labrador, and West Greenland. These fisheries have recently been closed or vastly reduced to protect the remaining stocks. There has also been recreational fishing for salmon in rivers and estuaries as they return to spawn. In recent years, this activity was limited to catch-and-release fishing; in 2000, recreational fishing was closed altogether (except for an angling fishery on stocked fish farther south in the Merrimack River) (NMFS and U.S. Fish and Wildlife Service, 2000).

Adult returns to the GOM DPS have been very low for many years and remain extremely low in terms of adult abundance in the wild. Further, the majority of all adults in the GOM DPS return to a single river, the Penobscot, which accounted for 91 percent of all adult returns to the GOM DPS in 2007. Of the 1044 adult returns to the Penobscot in 2006, 996 of these were the result of smolt stocking and only the remaining 48 were naturally-reared. A total of 916 and

[21] The ESA extends protection to a distinct population segment (DPS) in part to preserve genetic diversity important to the species' survival. A DPS is a population segment that is: (1) "discrete" (to some extent separated from the remainder of the species or subspecies), and (2) "significant" (biologically and ecologically).

2,117 adult salmon returned to the Penobscot River in 2007 and 2008, respectively. Most of these returns were also of hatchery origin (USASAC 2008). The term naturally-reared includes fish originating from natural spawning and from hatchery fry (USASAC 2008). Hatchery fry are included as naturally-reared because hatchery fry are not marked; therefore, they cannot be distinguished from fish produced through natural spawning. Because of the extensive amount of fry stocking that takes place in an effort to recover the GOM DPS, it is possible that a substantial number of fish counted as naturally-reared were actually stocked as fry. The abundance of Atlantic salmon in the GOM DPS has been low and either stable or declining over the past several decades. The proportion of fish that are of natural origin is very small (approximately 10%) and is continuing to decline. The conservation hatchery program has assisted in slowing the decline and helping to stabilize populations at low levels, but has not contributed to an increase in the overall abundance of salmon and has not been able to halt the decline of the naturally-reared component of the GOM DPS. No harvest of Atlantic salmon is allowed in the EEZ under the New England Fishery Management Council's Atlantic Salmon FMP (64 FR 40521).

No data exist to demonstrate that Atlantic salmon interact with ALWTRP regulated gear. Any ALWTRP changes to numbers of vertical lines, gear configuration and/or marking will likely have no impact on the survival of Atlantic salmon in the Gulf of Maine.

4.3.1.2 Shortnose Sturgeon

The sturgeon family is among the most primitive of the bony fishes. The shortnose sturgeon (*Acipenser brevirostrum*) shares the same general external morphology of all sturgeon. Its elongated fusiform body is moderately depressed and the body surface contains five rows of bony plates or scutes. Its subterminal mouth has barbels and is well suited for bottom feeding (mollusks and crustaceans are the primary food of adults) and a generally benthic existence.

The shortnose sturgeon is an anadromous fish that spawns in the coastal rivers along the east coast of North America from the St. John River in Canada to the St. Johns River in Florida. It prefers the nearshore marine, estuarine, and riverine habitat of large river systems. Unlike other anadromous species in the region such as shad or salmon, shortnose sturgeon do not appear to frequently make long-distance offshore migrations. Hence, the impact of the ALWTRP on the species is likely to be minor.[22]

Male and female shortnose sturgeons mature at the same length (45 to 55 cm fork length) throughout their range. However, age of maturation varies from north to south due to a slower growth rate in the north. Males may mature at two to three years of age in Georgia, at age three to five from South Carolina to New York, and at age 10 to 11 in the St. John River, Canada. Females exhibit a similar trend and mature at age six or younger in Georgia, at age six to seven from South Carolina to New York, and at age 13 in the St. John River. Age of first spawning in males occurs one to two years after maturity, but among females is delayed for up to five years. Generally, females spawn every three years, although males may spawn every year.

[22] Unless otherwise indicated, the information provided in this section is based on material provided at the NMFS Protected Resources website: http://www.nero.noaa.gov/prot_res/sturgeon/.

While the shortnose sturgeon was rarely the target of a commercial fishery, it often was taken incidentally in the commercial fishery for Atlantic sturgeon. In the 1950s, sturgeon fisheries declined on the east coast and systematic data on shortnose sturgeon landings became scarce. This led the Fish and Wildlife Service (FWS) to conclude that the fish had been eliminated from the rivers in its historic range (except the Hudson River) and was in danger of extinction. FWS believed the population level of the shortnose sturgeon had declined because of pollution and overfishing, both directly and incidentally in shad gillnets.

The shortnose sturgeon (*Acipenser brevirostrum*) was listed as endangered in its entire range on March 11, 1967 (32 FR 4001). Shortnose sturgeon remained on the endangered species list with enactment of the ESA in 1973. Populations occur in New Brunswick, Canada (1), Maine (2), Massachusetts (1), Connecticut (1), New York (1), New Jersey/Delaware (1), Maryland/Virginia (1), North Carolina (1), South Carolina (4), Georgia (4) and Florida (2).

No data exist to demonstrate that shortnose sturgeon interact with ALWTRP regulated gear; therefore, trap/pot and gillnet gear managed under the ALWTRP pose little or no threat to this species.

4.3.1.3 Roseate Tern and Piping Plover

The roseate tern (*Sterna dougallii dougallii*) and piping plover (*Charadrius melodus*) inhabit coastal waters and nest on coastal beaches within the Northeast Region. Terns prey on small schooling fishes, while plovers prey on shoreline invertebrates and other small fauna. Foraging activity for these species occurs either along the shoreline (plovers) or within the top several meters of the water column (terns). Trap/pot and gillnet gear managed under the ALWTRP are expected to pose little or no threat to these species or their forage species.

4.3.2 Species Potentially Affected

A variety of endangered, threatened, or protected species would potentially be affected by changes in ALWTRP requirements. The sections below examine protected whale, porpoise, dolphin, seal, fish and turtle species whose survival may be affected by interactions with commercial fishing gear.

4.3.2.1 Whales

Blue Whale

Like the fin whale, blue whales (*Balaenoptera musculus*) occur worldwide and are believed to follow a similar migration pattern from northern summering grounds to more southern wintering areas (Perry et al., 1999). Three subspecies have been identified: *Balaenoptera musculus musculus, B.m. intermedia*, and *B.m. brevicauda* (NMFS, 1998b). Only *B.m. musculus* occurs in the northern hemisphere. Blue whales range in the North Atlantic from

the subtropics to Baffin Bay and the Greenland Sea. The IWC currently recognizes these whales as one stock (Perry et al., 1999).

Blue whales were hunted intensively from the turn of the century, when development of steam-powered vessels and deck-mounted harpoon guns made it possible to exploit them on an industrial scale, to the mid-1960s (NMFS, 1998b). Blue whale populations declined worldwide as the new technology spread and became widely used (Perry et al., 1999). Subsequently, the whaling industry shifted effort away from declining blue whale stocks and targeted other large species, such as fin whales, and then resumed hunting for blue whales when the species seemed to be more abundant (Perry et al., 1999). The result was a cyclical rise and fall, leading to severe depletion of blue whale stocks worldwide (Perry et al., 1999). In all, at least 11,000 blue whales were taken in the North Atlantic from the late 19th century through the mid-20th century. Blue whales were given complete protection in the North Atlantic in 1955 under the International Convention for the Regulation of Whaling. There are no good estimates of the pre-exploitation size of the western North Atlantic blue whale stock, but it is widely believed that this stock was severely depleted by the time legal protection was introduced in 1955 (Perry et al., 1999). Mitchell (1974) suggested that the stock numbered in the very low hundreds during the late 1960s through early 1970s (Perry et al., 1999). Photo-identification studies of blue whales in the Gulf of St. Lawrence from 1979 to 1995 identified 320 individual whales (NMFS, 1998b). NMFS recognizes a minimum population estimate of 308 blue whales within the Northeast Region (Waring et al., 2002).

Blue whales are only occasional visitors to east coast U.S. waters. They are more commonly found in Canadian waters, particularly the Gulf of St. Lawrence, where they are present for most of the year, and in other areas of the North Atlantic. It is assumed that blue whale distribution is governed largely by food requirements (NMFS, 1998b). In the Gulf of St. Lawrence, blue whales seem to predominantly feed on a variety of copepod species (NMFS, 1998b).

Compared to the other species of large whales, relatively little is known about this species. Sexual maturity is believed to occur in both sexes between five and 15 years of age. Gestation lasts ten to 12 months and calves nurse for six to seven months. The average calving interval is estimated to be two to three years. Birth and mating both take place in the winter season (NMFS, 1998b), but the location of wintering areas is speculative (Perry et al., 1999). In 1992, the U.S. Navy and contractors conducted an extensive blue whale acoustic survey of the North Atlantic and found concentrations of blue whales on the Grand Banks and west of the British Isles. One whale was tracked for 43 days, during which it traveled 1,400 nautical miles around the general area of Bermuda (Perry et al., 1999).

There is limited information on the factors affecting natural mortality of blue whales in the North Atlantic. Ice entrapment is known to kill and seriously injure some blue whales during late winter and early spring, particularly along the southwest coast of Newfoundland. Habitat degradation has been suggested as possibly affecting blue whales in the Gulf of St. Lawrence, where habitat has been degraded by acoustic and chemical pollution. However, there are no data to confirm that blue whales have been affected by such habitat changes (Perry et al., 1999).

Ship strikes and entanglements in commercial fishing gear are believed to be the major sources of anthropogenic mortality and injury of blue whales. However, confirmed deaths or serious injuries are few. In 1987, concurrent with an unusual influx of blue whales into the Gulf of Maine, one report was received from a whale watch boat that spotted a blue whale in the southern Gulf of Maine entangled in gear described as probable lobster pot gear. A second animal found in the Gulf of St. Lawrence apparently died from the effects of an entanglement. In March 1998, a juvenile male blue whale was carried into Rhode Island waters on the bow of a tanker. The cause of death was determined to be due to a ship strike that may have occurred outside the U.S. EEZ (Waring et al., 2002).

Sei Whale

The range of sei whales (*Balaenoptera borealis*) extends from subpolar to subtropical and even tropical marine waters; however, the species is most commonly found in temperate waters (Perry et al., 1999). Based on past whaling operations, the IWC recognized three stocks in the North Atlantic: (1) Nova Scotia; (2) Iceland-Denmark Strait; and (3) Northeast Atlantic (Donovan, 1991 *in* Perry et al., 1999). Mitchell and Chapman (1977) suggested that the sei whale population in the western North Atlantic consists of two stocks, a Nova Scotian Shelf stock and a Labrador Sea stock. The Nova Scotian Shelf stock includes the continental shelf waters of the Northeast Region, and extends northeastward to south of Newfoundland. The IWC boundaries for this stock are from the U.S. east coast to Cape Breton, Nova Scotia and east to 42°00'W longitude (Waring et al., 2003). This is the only sei whale stock within ALWTRP boundaries.

Sei whales became the target of modern commercial whalers in the late 19th and early 20th century after stocks of other whales, including right, humpback, fin, and blues, had already been depleted. Sei whales were taken in large numbers by Norway and Scotland from the beginning of modern whaling (NMFS, 1998a). Small numbers were also taken off of Spain, Portugal, and West Greenland from the 1920s to 1950s (Perry et al., 1999). In the western North Atlantic, a total of 825 sei whales were taken on the Scotian Shelf between 1966 and 1972, and an additional 16 were taken by a shore-based Newfoundland whaling station (Perry et al., 1999). The species continued to be exploited in Iceland until 1986 even though measures to stop whaling of sei whales in other areas had been put into place in the 1970s (Perry et al., 1999). There is no estimate for the abundance of sei whales prior to commercial whaling. Based on whaling records, approximately 14,295 sei whales were taken in the entire North Atlantic from 1885 to 1984 (Perry et al., 1999).

Sei whales winter in warm temperate or subtropical waters and summer in more northern latitudes. In the North Atlantic, most births occur in November and December, when the whales are on their wintering grounds. Conception is believed to occur in December and January. Gestation lasts for 12 months, and calves are weaned at between six and nine months, when the whales are on the summer feeding grounds (NMFS, 1998a). Sei whales reach sexual maturity between five and 15 years of age. The calving interval is believed to be two to three years (Perry et al., 1999).

Sei whales occur in deep water throughout their range, typically over the continental slope or in basins situated between banks (NMFS, 1998a). In the northwest Atlantic, the whales travel along the eastern Canadian coast in autumn on their way to the Gulf of Maine and Georges Bank, where they occur in winter and spring. Within the Northeast Region, the sei whale is most common on Georges Bank, including the Great South Channel, and into the Gulf of Maine/Bay of Fundy region during spring and summer. Individuals may range as far south as North Carolina. It is important to note that sei whales are known for inhabiting an area for weeks at a time, then disappearing for years or even decades. This has been observed in many areas, including in the southwestern Gulf of Maine in 1986, but the basis for this phenomenon is not clear.

Although sei whales may prey upon small schooling fish and squid in the Northeast Region, available information suggests that calanoid copepods are the primary prey of this species. There are occasional influxes of sei whales farther into Gulf of Maine waters, presumably in conjunction with years of high copepod abundance inshore. Sei whales are occasionally seen feeding in association with right whales in the southern Gulf of Maine and in the Bay of Fundy, although there is no evidence of interspecific competition for food resources. There is very little information on natural mortality factors for sei whales. Possible causes of natural mortality, particularly for young, old, or otherwise compromised individuals, are shark attacks, killer whale attacks, and endoparasitic helminthes (Perry et al., 1999).

There are insufficient data to determine trends of the sei whale population. The total number of sei whales in the U.S. Atlantic EEZ is unknown. However, five abundance estimates are available for portions of the sei whale habitat: from Nova Scotia during the 1970s, in the U.S. Atlantic EEZ during the springs of 1979-1981, and in the U.S. and Canadian Atlantic EEZ during the summers of 2002, 2004, and 2006. The August 2004 abundance estimate (386) is considered the best available for the Nova Scotia stock of sei whales. The minimum population estimate is 208 (Waring et al., 2012).

Few instances of injury or mortality of sei whales due to entanglement or vessel strikes have been recorded in U.S. waters. For the period 2005 through 2009, the minimum annual rate of human-caused mortality and serious injury to sei whales was 1.02. This value includes incidental fishery interaction records, 0.6, and records of vessel collisions, 0.6 (Henry *et al.* 2011). Annual rates calculated from detected mortalities should not be considered an unbiased representation estimate of human-caused mortality. Detections are haphazard, incomplete and not the result of a designed sampling scheme. As such, they represent a minimum estimate of human-caused mortality which is almost certainly biased low (Waring et al., 2012).

Sperm Whale

Sperm whales (*Physeter macrocephalus*) inhabit all ocean basins, from equatorial waters to the polar regions (Perry et al., 1999). In the western North Atlantic they range from Greenland to the Gulf of Mexico and the Caribbean. The sperm whales that occur in the western North Atlantic are believed to represent only a portion of the total stock (Blaylock et al., 1995). Total numbers of sperm whales off the U.S. or Canadian Atlantic coast are unknown, although eight estimates from selected regions of the habitat do exist for select time periods. The best

recent abundance estimate for sperm whales is the sum of the estimates from the two 2004 U.S. Atlantic surveys, 4,804 (CV=0.38), where the estimate from the northern U.S. Atlantic is 2,607 (CV=0.57), and from the southern U.S. Atlantic is 2,197 (CV=0.47). This joint estimate is considered best because together these two surveys have the most complete coverage of the species' habitat (Waring et al., 2007). The IWC recognizes one stock for the entire North Atlantic (Waring et al., 2002).

The IWC estimates that nearly a quarter-million sperm whales were killed worldwide in whaling activities between 1800 and 1900 (IWC, 1971). With the advent of modern whaling the larger rorqual whales were targeted; however, as their numbers decreased, whaling pressure again focused on smaller rorquals and sperm whales. From 1910 to 1982, there were nearly 700,000 sperm whales killed worldwide from whaling activities (Clarke, 1954; Committee for Whaling Statistics, 1959-1983). Some sperm whales were also taken off the U.S. Mid-Atlantic coast (Reeves and Mitchell, 1988; Perry et al., 1999) and in the northern Gulf of Mexico (Perry et al., 1999). Recorded North Atlantic sperm whale catch numbers for Canada and Norway from 1904 to 1972 total 1,995. All killing of sperm whales was banned by the IWC in 1988.

Sperm whales generally occur in waters greater than 180 meters in depth, with a preference for continental margins, seamounts, and areas of upwelling, where food is abundant (Leatherwood and Reeves, 1983). Sperm whales in both hemispheres migrate to higher latitudes in the summer to feed, and return to lower latitudes in the winter, where mating and calving occur. Mature males typically range to greater latitudes than mature females and immature animals, but return to the lesser latitudes in the winter to breed (Perry et al., 1999). Waring et al. (1993) suggest sperm whale distribution is closely correlated with the Gulf Stream edge, with a migration to higher latitudes during summer months resulting in concentrations of whales east and northeast of Cape Hatteras. This distribution extends farther northward to areas north of Georges Bank and the Northeast Channel region in summer, then shifts south of New England in fall, back to the Mid-Atlantic Bight (Waring et al., 2002).

Mature females in the northern hemisphere ovulate from April through August. A single calf is born after a 15-month gestation. A mature female will produce a calf every four to six years. Females attain sexual maturity at a mean age of nine years, while males have a prolonged puberty and attain sexual maturity at a mean age of 19 years (Waring et al., 2002). Male sperm whales may not reach physical maturity until they are 45 years old (Waring et al., 2002). The sperm whale's prey consists of larger mid-water squid and fish species (Perry et al., 1999). Sperm whales, especially mature males in greater latitudinal waters, have been observed to take significant quantities of large demersal and deep water sharks, multispecies, and bony fishes.

Few instances of injury or mortality of sperm whales due to human impacts have been recorded in U.S. waters. Between August 1993 and May 1998, three sperm whale entanglements were documented, one each in longline gear (dead floating whale), fine mesh gillnet (disentangled), and net gear (status unknown). The NEFSC bycatch database contains two records of sperm whale entanglement, both involving injured whales that were released from pelagic drift gillnet gear (Waring et al., 2002). No mortalities or serious injuries have been directly observed in the pelagic longline, pelagic pair trawl, Northeast multispecies sink gillnet,

Mid-Atlantic coastal gillnet, or North Atlantic bottom trawl fisheries (Waring et al., 2002).[23] During 2001-2005, human caused mortality was 0.2 sperm whales per year (CV=unknown). This is derived from two components: 0 sperm whales per year (CV=unknown) from U.S. fisheries using observer data and 0.2 sperm whales per year from ship strikes (Waring et al., 2007). Ships can also strike sperm whales, but due to the offshore distribution of this species, interactions (both ship strikes and entanglements) that do occur are less likely to be reported than those involving right, humpback, and fin whales, which are more often found in nearshore areas. Other impacts noted above for baleen whales may also occur.

As a result of their offshore distribution, sperm whales tend to strand less often than, for example, right and humpback whales. Preliminary data for 2000 indicate that out of ten sperm whales reported to the stranding network (nine dead and one injured), there was one possible fishery interaction, one ship strike (wounded with bleeding gash on side), and eight animals for which no signs of entanglement or injury were sighted or reported.

It has been suggested that another potential human-caused source of mortality for sperm whales may be the accumulation of stable pollutants such as polychlorinated biphenyls (PCBs), chlorinated pesticides, polycyclic aromatic hydrocarbons, and heavy metals. Though not conclusively caused by contaminant burden, tissue samples from 21 sperm whales that mass stranded in the North Sea in 1994/95 showed cadmium levels twice as high as those found in North Pacific sperm whales, possibly affecting the stranded animals' health and behavior (Holsbeek, et al. 1999).

4.3.2.2 Harbor Porpoise

The harbor porpoise (*Phocoena phocoena*) is found in temperate and subpolar waters in the Northern Hemisphere. The species frequents nearshore waters such as bays and estuaries, but also travels in deeper offshore waters. The Gulf of Maine/Bay of Fundy stock includes all harbor porpoise found in the waters of eastern North America south of (and including) Nova Scotia and the Bay of Fundy. To estimate the population size of harbor porpoises in the Gulf of Maine/Bay of Fundy region, eight line transect sighting surveys were conducted during the summers of 1991, 1992, 1995, 1999, 2002, 2004, 2006, and 2007. The best current abundance estimate of the Gulf of Maine/Bay of Fundy harbor porpoise stock is 79,883 (Waring et al 2013).

Harbor porpoise prey on small schooling fish, including some fish that are sought by gillnet fishermen. As a result, harbor porpoise can become entangled in gillnets and drown. Gillnets typically used in Northeast and Mid-Atlantic U.S. waters to catch groundfish, such as cod and flounder, have been one source of harbor porpoise mortality and serious injury.[24] In 1993, NMFS proposed to list the Gulf of Maine/Bay of Fundy stock of harbor porpoise under the ESA as threatened. At the time of the proposal, the listing was considered necessary based on analyses of the porpoise bycatch rate in commercial gillnet fisheries.

[23] It is important to note that the pelagic drift gillnet fishery no longer exists; therefore, this type of gear no longer poses an entanglement threat to this species.

[24] In addition to incidental takes in U.S. waters, the harbor porpoise is also vulnerable to takes in the Canadian Bay of Fundy groundfish sink gillnet and herring weir fisheries.

Following this proposal, NMFS solicited public comment and scientific review to assess questions on the sufficiency and accuracy of bycatch data used in making the "threatened" determination. Average annual estimated harbor porpoise mortality and serious injury in the Northeast sink gillnet fishery from 1994 to 1998 was 1,163. A Take Reduction Team was formed in 1996 to address incidental take of harbor porpoise in the Northeast groundfish sink gillnet and Mid-Atlantic coastal gillnet fisheries. Regulations (63 FR 66464) implementing the Harbor Porpoise Take Reduction Plan (HPTRP) to reduce harbor porpoise bycatch in U.S. Atlantic gillnets were published on December 1, 1998 and became effective January 1, 1999 (63 FR 66464). The Gulf of Maine portion of the HPTRP pertains to all fishing with sink gillnets and other gillnets capable of catching multispecies in New England waters, from Maine through Rhode Island, and includes time and area closures, some of which are complete closures. Other fisheries are closed to multispecies gillnet fishing unless pingers (sound-making devices) are used in the prescribed manner. The Mid-Atlantic portion of the HPTRP pertains to the Mid-Atlantic shore line from New York to North Carolina, and also includes time and area closures.

The total annual estimated average human-caused mortality is 927 harbor porpoises per year. This is derived from two components: 883 harbor porpoise per year from U.S. fisheries using observer and MMAP data, and 44 per year (unknown CV) from Canadian fisheries using observer data (Waring et al., 2012). Average estimated harbor porpoise mortality and serious injury in the Northeast sink gillnet fishery during 1994-1998, before the Take Reduction Plan, was 1,163 (0.11). The average annual harbor porpoise mortality and serious injury in the Northeast sink gillnet fishery from 2005 to 2009 was 559 (0.16) (Waring et al., 2012). Annual average estimated harbor porpoise mortality and serious injury from the Mid-Atlantic gillnet fishery during 1995 to 1998, before the Take Reduction Plan, was 358 (CV=0.20). The average annual harbor porpoise mortality and serious injury in the Mid-Atlantic gillnet fishery from 2005 to 2009 was 318 (0.26)(Waring et al., 2012). Annual average estimated harbor porpoise mortality and serious injury from the northeast bottom trawl fishery from 2005 to 2009 was 6.0 (0.22)(Waring et al., 2012).

A ruling to reduce harbor porpoise bycatch in U.S. Atlantic gillnets was published in the Federal Register (63 FR 66464) on December 2, 1998, and became effective January 1, 1999. The Gulf of Maine portion of the Harbor Porpoise Take Reduction Plan (HPTRP) pertains to all fishing with sink gillnets and other gillnets capable of catching regulated groundfish in New England waters, from Maine through Rhode Island. This portion of the rule includes time and area closures, some of which are complete closures; others are closed to gillnet fishing unless pingers are used in the prescribed manner. Also, the rule requires those who intend to fish to attend training and certification sessions on the use of the technology. The Mid-Atlantic portion of the plan pertains to waters west of 72º30'W longitude to the Mid-Atlantic shoreline from New York to North Carolina. This portion of the rule includes time and area closures, some of which are complete closures; others are closed to gillnet fishing unless the gear meets certain restrictions. The MMPA mandates that the take reduction teams that developed the above take reduction measures periodically meet to evaluate the effectiveness of the plan and modify it as necessary. The Harbor Porpoise Take Reduction Team was reconvened in December 2007 to discuss updated harbor porpoise abundance and bycatch information. The Team recommended modifications to the plan to further reduce harbor porpoise bycatch in commercial fisheries. As a result, the HPTRP was amended on February 19, 2010 (75 FR 7383), to expand management

areas and seasons in which pingers are required, as well as to increase efforts to monitor and enforce the plan. In addition, the New England portion of the HPTRP included consequence closure areas as a management measure strategy. These areas with historically high bycatch rates will close seasonally only if bycatch rates over two consecutive management seasons exceed a specified bycatch rate. This management strategy is intended to reduce harbor porpoise bycatch and to increase compliance with HPTRP regulations. Once triggered, these areas would remain in effect until bycatch levels achieve zero mortality rate goal (ZMRG) or until new management measures are implemented in these areas (Waring et al., 2012). On October 4, 2013 NMFS published a final rule (78 FR 61821) removing the consequence closure strategy from the HPTRP. This action was necessary to prevent the improper triggering of consequence closure areas based on target harbor porpoise bycatch rates that no longer accurately reflect actual bycatch in New England sink gillnets due to fisherywide changes in fishing practices. NMFS will continue working the the Team to consider what additional management measures may be necessary to ensure compliance with the pinger requirements.

4.3.2.3 Dolphins

Pilot whales, and bottlenose, Atlantic white-sided, Risso's, striped, spotted, and common dolphins are protected dolphin species under the MMPA. This section provides further information on the range, abundance, and average annual fishery-related mortality associated with specific stocks of these species that are potentially affected by the ALWTRP.

Western North Atlantic Coastal Bottlenose Dolphin

Initially, a single stock of coastal morphotype bottlenose dolphins was thought to migrate seasonally between New Jersey (summer months) and central Florida based on seasonal patterns in strandings during a large scale mortality event occurring during 1987-1988 (Scott *et al.* 1988). However, re-analysis of stranding data (McLellan et al. 2003) and extensive analysis of genetic (Rosel et al. 2009), photo-ID (Zolman 2002), and satellite telemetry (Southeast Fisheries Science Center, unpublished data) data demonstrate a complex mosaic of coastal bottlenose dolphin stocks. Integrated analysis of these multiple lines of evidence suggests that there are five coastal stocks of bottlenose dolphins: the Northern Migratory and Southern Migratory stocks, a South Carolina/Georgia Coastal stock, a Northern Florida Coastal stock and a Central Florida Coastal stock (Waring et al., 2011).

One of the first abundance estimates for WNA coastal bottlenose dolphins was conducted in 1995. This 1995 abundance estimate was based upon results from the analyses of a combination of surveys. A new aerial survey to estimate abundance of WNA coastal bottlenose dolphins was conducted in 2002. The resulting estimates are summarized in Exhibit 4-37.

Bottlenose dolphins are known to interact with commercial fisheries and occasionally are taken in various kinds of fishing gear, including gillnets, seines, longlines, shrimp trawls, and crab traps/pots (Waring et al., 2002). Interactions are especially common in near-shore areas where dolphin densities and fishery efforts are greatest. The coastal bottlenose stocks are known to interact with the following commercial fisheries, according to the 2013 MMPA List of

Fisheries (LOF): the Mid-Atlantic gillnet, North Carolina inshore gillnet, Southeast Atlantic gillnet, Southeast Atlantic U.S. shark gillnet, Southeast Atlantic Gulf of Mexico shrimp trawl, Southeast U.S. Atlantic Gulf of Mexico stone crab trap/pot, Atlantic blue crab trap/pot, Mid-Atlantic menhaden purse seine, Mid-Atlantic haul/beach seine, and Virginia pound net.

Exhibit 4-37

ABUNDANCE ESTIMATES FOR THE WESTERN NORTH ATLANTIC COASTAL BOTTLENOSE DOLPHIN BY MANAGEMENT UNIT

Unit	Best Estimate	Coefficient of Variance	Minimum Estimate
Northern Migratory	9,604	0.36	7,147
Central Florida Coastal	6,318	0.26	5,094
Northern Florida Coastal	3,064	0.24	2,511
South Carolina-Georgia Coastal	7,738	0.23	6,399
Atlantic Southern Migratory Coastal	12,482	0.32	9,591

Source: Waring et al., 2010.

Of the fisheries listed previously, the Mid-Atlantic coastal gillnet, Southeast Atlantic gillnet, Atlantic coastal blue crab trap/pot, and Southeastern U.S. Atlantic shark gillnet fisheries may be affected by potential revisions to the ALWTRP. The Mid-Atlantic coastal gillnet fishery accounts for the highest documented level of mortality or serious injury of coastal morphotype bottlenose dolphins.

In addition to interactions with gillnets, interactions with trap/pot gear may threaten bottlenose dolphins. Southeast Regional Marine Mammal Stranding Network data from 2004 through 2008 include 13 reports of interactions between bottlenose dolphins and confirmed blue crab pot gear with the majority of these occurring in waters from Florida to South Carolina. In addition, there were 4 interactions documented with pot gear where the fishery could not be confirmed. In these cases, the gear was confirmed to be associated with a pot or trap, but may have been from a fishery other than blue crab (e.g., whelk fisheries in Virginia) (Waring et al., 2010).

From 1995 to 2001, NMFS recognized only a single migratory stock of coastal bottlenose dolphins in the WNA, and the entire stock was listed as depleted. This stock structure was revised in 2002 to recognize both multiple stocks and seasonal management units and again in 2008 and 2009 to recognize resident estuarine stocks and migratory and resident coastal stocks. The total U.S. fishery-related mortality and serious injury for the Northern Migratory stock cannot be directly estimated because of the spatial overlap among the stocks of bottlenose dolphins that occupy waters of North Carolina. In addition, several fisheries are unobserved, and the reported mortalities are minimum estimates. The total mortality is therefore unlikely to be less than 10% of the calculated PBR, and thus cannot be considered to be insignificant and

approaching zero mortality and serious injury rate. This stock retains the depleted designation as a result of its origins from the coastal migratory stock. The species is not listed as threatened or endangered under the Endangered Species Act, but these are strategic stocks due to the depleted listing under the MMPA (Waring et al., 2010). The PBR levels and estimated 2004-2008 fisheries-related mortality for the five stocks are summarized in Exhibit 4-38.

Exhibit 4-38

ESTIMATED AVERAGE ANNUAL FISHERY MORTALITY (2004-2008) AND CURRENT PBR ESTIMATES FOR WESTERN NORTH ATLANTIC COASTAL BOTTLENOSE DOLPHINS

Stock	Estimated Mortality	Current PBR Estimates
Northern Migratory	6-8	71
Central Florida Coastal[1]	Unknown	51
Northern Florida Coastal[1]	Unknown	25
South Carolina-Georgia Coastal[1]	Unknown	64
Southern Migratory Coastal	24-55	96

Notes:

1. Three category II fisheries have the potential to interact with this stock, and observer coverage of these fisheries is limited.

Sources: Waring et al., 2010.

Other anthropogenic sources of mortality for bottlenose dolphins include pollution and habitat degradation. The nearshore habitat occupied by bottlenose dolphins is adjacent to human populations and, in the northern portion of its range, is highly industrialized. The blubber of stranded dolphins examined during a 1987-88 multiple mortality event along the Atlantic coast contained anthropogenic contaminants in levels among the highest ever recorded (Geraci, 1989).

On October 24, 2001, NMFS announced the creation of a Bottlenose Dolphin Take Reduction Team (BDTRT) and its first meeting (66 FR 53782). The BDTRT met five times before delivering consensus recommendations to NMFS on May 7, 2002. Additionally, the BDTRT met in April 2003 to review updated bottlenose dolphin abundance information and to augment original recommendations that failed to meet the statutory requirements of the MMPA. NMFS issued a final rule to implement the Bottlenose Dolphin Take Reduction Plan (BDTRP) on April 26, 2006 (71 FR 24776). The management measures implemented under the BDTRP are designed to address incidental mortality and serious injury of bottlenose dolphins in the Mid-Atlantic gillnet fishery and eight other coastal fisheries operating within the dolphin's distributional range. The BDTRP contains both regulatory and non-regulatory management measures to reduce serious injury and mortality of the Western North Atlantic coastal bottlenose dolphin stock (dolphin) (*Tursiops truncatus*), a strategic stock, in nine Category I and II commercial fisheries operating within the dolphin's distributional range. The Western North Atlantic coastal bottlenose dolphin stock is split into seven spatial and temporal management units because of its biological complexity, and management measures in the BDTRP are applied by management unit. Both the regulatory and non-regulatory management measures are designed to meet the BDTRP's short-term goal and provide a framework for meeting the long-term goal.

The regulatory management measures in the BDTRP include seasonal gillnet restrictions, gear proximity requirements, and gear length restrictions. The nighttime medium mesh (greater than 5–inch (12.7 cm) to less than 7–inch (17.8 cm) stretch) gillnet fishing prohibition in North Carolina state waters from November 1 through April 30, annually, was set to expire on May 26, 2009. This was extended an additional three years by a final rule issued December 19, 2008 (73 FR 77531). NMFS published a final rule on July 31, 2012 to permanently continue nighttime fishing restrictions of medium mesh gillnets operating in North Carolina coastal state waters from November 1 through April 30. NMFS also amended the BDTRP with updates, including updates recommended by the Team for non-regulatory conservation measures.

Atlantic White-Sided Dolphin

Atlantic white-sided dolphins (*Lagenorhynchus acutus*) are found in temperate and sub-polar waters of the North Atlantic, primarily on continental shelf waters out to the 100-meter depth contour. The species is distributed from central western Greenland to North Carolina, and possibly as far east as 43°00' W. There are possibly three stock units of this species: a Gulf of Maine stock, a Gulf of St. Lawrence stock, and a Labrador Sea stock (Palka et al., 1997). The Gulf of Maine stock is commonly found in continental shelf waters from Hudson Canyon to Georges Bank and into the Gulf of Maine to the Bay of Fundy. The best estimate of abundance for the western North Atlantic stock of Atlantic white-sided dolphin stock is 23,390, and the minimum estimate is 19,019 (Waring et al., 2012). The PBR for this stock is approximately 190 (Waring et al., 2012).

Atlantic white-sided dolphins have become entangled in Northeast sink gillnet, Mid-Atlantic coastal gillnet, pelagic drift gillnet, North Atlantic bottom trawl, and Atlantic squid, mackerel, and butterfish trawl fisheries. Total annual estimated average fishery-related mortality or serious injury to this stock during 2005-2009 was 245 (CV=0.12) white-sided dolphins (Waring et al., 2012). Approximately 36 of these mortalities are attributable to the Northeast sink gillnet fishery, 160 are attributed to the Northeast bottom trawl fishery; 1.9 to the Northeast mid water trawl fishery; 24 to the Mid-Atlantic mid water trawl fishery; and 23 to the Mid-Atlantic bottom trawl fishery (Waring et al., 2012). The Northeast sink gillnet fishery is currently regulated under the ALWTRP.

Risso's Dolphin

The Risso's dolphin (*Grampus griseus*) is found worldwide in tropical and temperate waters. The western North Atlantic stock occurs along the continental shelf from Cape Hatteras to Georges Bank. The best abundance estimate for Risso's dolphins is the sum of the estimates from the two 2004 U.S. Atlantic surveys, 20,479 (CV=0.59), where the estimate from the northern U.S. Atlantic is 15,053 (CV=0.78), and from the southern U.S. Atlantic is 5,426 (CV=0.54). This joint estimate is considered best because these two surveys together have the most complete coverage of the population's habitat (Waring et al., 2012). The minimum estimate is 12,920 (Waring et al., 2012). Based on these data, the PBR for the western North Atlantic stock of Risso's dolphins is approximately 124 dolphins per year.

The total annual estimated average fishery-related mortality or serious injury to this stock during 2005-2009 was 18 Risso's dolphins (CV=0.37). The annual average combined mortality and serious injury for 2005- 2009 by fishery is as follows: 8 in the pelagic longline fishery; 3 in the Northeast sink gillnet fishery; and 7 in the Mid-Atlantic gillnet fishery (Waring et al., 2012). The Northeast sink gillnet fishery is currently regulated under the ALWTRP.

Pelagic Delphinids (Spotted Dolphin, Striped Dolphin, Pilot Whale, Offshore Bottlenose Dolphin, Common Dolphin)

The pelagic delphinid complex is made up of small odontocete species that are broadly distributed along the continental shelf edge where depths range from 200 - 400 meters. These species include the western North Atlantic stock of spotted dolphins, western North Atlantic stock of striped dolphins, western North Atlantic stock of pilot whales, the western North Atlantic offshore stock of bottlenose dolphins, and the western North Atlantic stock of common dolphins.

Spotted Dolphin

The Atlantic spotted dolphin, *Stenella frontalis*, is distributed from southern New England south through the Gulf of Mexico and the Caribbean to Venezuela (Waring et al., 2013). These dolphins are commonly found in large groups that feed on schools of fish. Spotted dolphins are known to feed on a variety of prey, including small-to-large epipelagic and mesopelagic fishes and squids, and benthic invertebrates (Perrin et al., 2002).

An abundance estimate of 26,798 (CV=0.66) Atlantic spotted dolphins was generated from a shipboard and aerial survey conducted during June–August 2011. The minimum population estimate based on the 2011 abundance estimate for the Atlantic spotted dolphin stock is 16,151 (Waring et al. 2013). Based on these data, the PBR for the Western North Atlantic stock of spotted dolphin is 162 (Waring et al., 2013).Total annual estimated average fishery-related mortality or serious injury to this stock during 2006-2010 was 0.2 (Waring et al., 2013).

Striped Dolphin

Striped dolphins (*Stenella coeruleoalba*) are found in the western North Atlantic from Nova Scotia south to at least Jamaica, in the Gulf of Mexico, and in general prefer continental slope waters offshore to the Gulf Stream (Waring et al., 2000). These dolphins, like spotted dolphins, are commonly found in large groups that feed on schools of fish. Striped dolphins feed on a variety of pelagic or benthopelagic fish and squid, and in the Northeast Atlantic primarily feed on cod (Perrin et al., 2002). The best abundance estimate for striped dolphins is the result of the 2011 survey— 46,882 (CV=0.33). The minimum population estimate for this stock is 35,763. Based on these data, the PBR for the western North Atlantic striped dolphin is 358 (Waring et al., 2013).

Bycatch has previously been observed by the NMFS Fisheries Observer Program in the pelagic drift gillnet and North Atlantic bottom trawl fisheries, but no mortalities or serious injuries have recently been documented in any U.S. fishery. Total annual estimated average

fishery-related mortality to this stock during 2006-2010 was zero striped dolphins (Waring et al., 2013).

Pilot Whale

Pilot whales (*Globicephala melas* and *Globicephala macrorhynchus*) are found in the Gulf Stream and continental shelf and slope waters. Combined abundance estimates for the two pilot whale species – the long-finned and short-finned species have previously been derived from line-transect surveys. The best available abundance estimates are from surveys conducted during the summer of 2004. These survey data have been combined with an analysis of the spatial distribution of the two species based on genetic analyses of biopsy samples to derive separate abundance estimates (Garrison *et al.*, in prep.). The resulting abundance estimate is 12,619 (CV=0.37) for long-finned pilot whales in U.S. waters and 24,674 (CV=0.45) for short-finned pilot whales in U.S. waters (Waring et al., 2012). The minimum population estimate is 9,333 for long-finned pilot whales and 1,790 for short-finned pilot whales (Waring et al., 2012). PBR for long-finned pilot whales is 93 and for short-finned pilot whales is 172 (Waring et al., 2012).

Pilot whale bycatch has been observed by NMFS Sea Samplers in the pelagic drift gillnet, pelagic longline, pelagic pair trawl, bluefin tuna purse seine, North Atlantic bottom trawl, Atlantic squid, mackerel, butterfish trawl, and Mid-Atlantic coastal gillnet fisheries, but no mortalities or serious injuries have been documented in the Northeast multispecies sink gillnet fishery.[25] It is not possible to partition mortality estimates between the two pilot whale species because there are very few available genetic samples from the area of overlap and season where most mortality occurs. Mortality and serious injury estimates are thus presented only for the two species combined. Total annual estimated average fishery-related mortality or serious injury during 2005-2009 was 162 pilot whales (CV=0.15) (Waring et al., 2012). The fisheries responsible for these interactions are as follows: 30 in Mid-Atlantic bottom trawl fishery; 12 in the Northeast bottom trawl fishery; 2.4 in the Mid-Atlantic mid water trawl fishery; 3 in the Northeast mid water trawl fishery; 114 in the pelagic longline fishery; and 1 in the 2005 pelagic longline experimental fishery (Waring et al., 2012).

During 2005-2009, several human and/or fishery interactions were documented in stranded pilot whales. During a UME in Dare, North Carolina, in January 2005, 6 of the 33 short-finned pilot whales which mass stranded had fishery interaction marks (specifics not given) which were healed and determined not to be the cause of death. A short-finned pilot whale stranded in May 2005 in North Carolina had net marks around the leading edge of the dorsal fin from the top to bottom, and had net marks on both fluke lobes. Two long-finned pilot whales stranded in Virginia in April 2005, 1 with a line on its fluke and another with human interactions noted but specifics not given. Of the 2006 stranding mortalities, 2 were reported as exhibiting signs of human interaction, 1 in Massachusetts and 1 in Virginia. In 2008, 1 Massachusetts stranding mortality was deemed a fishery interaction due to line markings and cut flukes. The 2 New York strandings of long-finned pilot whales were classified as human interactions. One

[25] Waring et al. (2003) note that the pelagic drift gillnet and the pelagic pair trawl fisheries no longer exist.

long-finned pilot whale that stranded in Massachusetts in 2009 was classified as a human interaction because it had a piece of monofilament line in its stomach.

An additional potential human-caused source of mortality for pilot whales is from polychlorinated biphenyls (PCBs) and chlorinated pesticides, moderate levels of which have been found in pilot whale blubber (Taruski, 1975; Muir et al., 1988; Weisbrod et al., 2000b). In addition, high levels of toxic metals, selenium, and PCBs were measured in pilot whales killed in the Faroe Islands (Nielsen et al., 2000; Dam and Bloch, 2000). The population effect of the observed levels of such contaminants is currently unknown (Waring et al., 2003).

Offshore Bottlenose Dolphin

The western North Atlantic offshore stock of bottlenose dolphins (*Tursiops truncatus*) ranges from Florida to Georges Bank along the continental slope. The best available estimate for offshore morphotype bottlenose dolphins is the sum of the estimates from the June-July 2002 aerial survey covering the continental shelf, the summer 2004 vessel survey south of Maryland, and the summer 2004 vessel and aircraft surveys north of Maryland. This joint estimate provides complete coverage of the offshore habitat from central Florida to Canada during summer months. The combined abundance estimate from these surveys is 81,588 (CV=0.17) and the minimum population estimate is 70,775 (Waring et al., 2009). Based on these data, the PBR for the stock is 566 dolphins (Waring et al., 2009). Bottlenose dolphins are among the most frequently stranded small cetaceans along the Atlantic coast. Many of these stranded animals show signs of human interaction, such as net marks and mutilation (Waring et al., 2003).[26]

Offshore bottlenose dolphin bycatch has been observed by NMFS Sea Samplers in the pelagic drift gillnet, pelagic longline, pelagic pair trawl, North Atlantic bottom trawl, Northeast multispecies sink gillnet, and Mid-Atlantic coastal gillnet fisheries.[27] Total estimated mean annual fishery-related mortality for this stock during 2001-2006 is unknown; however, mortalities of offshore bottlenose dolphins were observed during this period in the Northeast Sink Gillnet and Mid-Atlantic Gillnet commercial fisheries (Waring et al., 2009).

Common Dolphin

Common dolphins (*Delphinus delphis*) may be among the most widely distributed cetacean species; they range worldwide in temperate, sub-tropical, and tropical waters. The western North Atlantic stock occurs most frequently north of Cape Hatteras along the continental shelf. The best abundance estimate for common dolphins is 67,191 animals (CV=0.29). The minimum estimate is 52,893(Waring et al., 2013). Based on these data, the PBR is 529 common dolphins (Waring et al., 2013).

[26] Average annual fishery-related mortality estimates are based on observer data between 1990 and 2001.

[27] Waring et al. (2003) note that the pelagic drift gillnet and the pelagic pair trawl fisheries no longer exist.

Common dolphin bycatch has been observed by NMFS Sea Samplers in the pelagic drift gillnet, pelagic longline, pelagic pair trawl, North Atlantic bottom trawl, Atlantic squid, mackerel, butterfish trawl, Northeast multispecies sink gillnet, and Mid-Atlantic coastal gillnet fisheries.[28] Total annual estimated average fishery-related mortality or serious injury to this stock during 2006-2010 was 164 (CV=0.12) common dolphins.

Of these deaths, 30 are associated with the Northeast sink gillnet fishery; 8.4 with the Mid-Atlantic gillnet fishery; 0.6 with the Mid-Atlantic mid water trawl fishery; 20 with the Northeast bottom trawl fishery; 103 with the Mid-Atlantic bottom trawl fishery; and 1.7 with the pelagic longline fishery (Waring et al., 2013). The Northeast multispecies sink gillnet and the Mid-Atlantic coastal gillnet fisheries are currently regulated under the ALWTRP.

4.3.2.4 Seals

Harbor Seal

The harbor seal (*Phoca vitulina*) is found in all nearshore waters of the Atlantic Ocean above 30 degrees latitude (Waring et al., 2003). In the western North Atlantic they are distributed from the eastern Canadian Arctic and Greenland south to southern New England and New York, and occasionally the Carolinas (Boulva and McLaren, 1979; Gilbert and Guldager, 1998). It is believed that the harbor seals found along the U.S. and Canadian east coasts represent one population (Waring et al., 2003). Harbor seals are year-round inhabitants of the coastal waters of eastern Canada and Maine, and occur seasonally along the southern New England and New York coasts from September through late May. However, breeding and pupping normally occur only in waters north of the New Hampshire/Maine border.

Since passage of the MMPA in 1972, the observed count of seals along the New England coast has been increasing. Coast-wide aerial surveys along the Maine coast were conducted in May/June 1981, 1986, 1993, 1997, and 2001 during pupping (Gilbert and Stein 1981; Gilbert and Wynne 1983,; 1984; Kenney 1994; Gilbert and Guldager 1998; Gilbert *et al.* 2005). However, estimates older than eight years are deemed unreliable (Wade and Angliss 1997) and should not be used for PBR determinations. Therefore, there is no current abundance estimate for harbor seals. The 2001 survey, conducted in May/June, included replicate surveys and radio tagged seals to obtain a correction factor for animals not hauled out. The corrected estimate (pups in parenthesis) for 2001 was 99,340 (23,722). The 2001 observed count of 38,014 is 28.7% greater than the 1997 count. Increased abundance of seals in the Northeast region has also been documented during aerial and boat surveys of overwintering haul-out sites from the Maine/New Hampshire border to eastern Long Island and New Jersey (Payne and Selzer 1989; Rough 1995; Barlas 1999; Schroeder 2000; deHart 2002). The maximum productivity rate is assumed to be 0.12, and the recovery factor for this stock is 0.5, which is the value for stocks of unknown status. PBR for U.S. waters is undetermined (Waring et al., 2013).

For the period 2006-2010, the total human caused mortality and serious injury to harbor seals is estimated to be 337 per year. The average was derived from two components: 1) 332 (CV=0.15) from the 2006-2010 observed fishery; and 2) 5 from average 2006-2010 non-fishery-related, human interaction stranding mortalities (NMFS unpublished data) (Waring et al., 2013).

[28] Waring et al. (2003) note that the pelagic drift gillnet and the pelagic pair trawl fisheries no longer exist.

The fishery-related mortalities and serious injuries are attributed as follows: 280 to the Northeast sink gillnet fishery; 50 to the Mid-Atlantic gillnet fishery; an unknown number to the Northeast bottom trawl fishery; and 0.7 to the Northeast mid water trawl fishery (Waring et al., 2013).

Researchers and fishery observers have documented incidental mortality in several fisheries, particularly within the Gulf of Maine (see below). An unknown level of mortality also occurred in the mariculture industry (i.e., salmon farming), and by deliberate shooting (NMFS unpublished data). Between 2006 and 2010, there are 5 records of harbors seals and 3 of unidentified seals with evidence of gunshot wounds in the Northeast Regional Office Marine Mammal Stranding Network database.

Additional sources of mortality for harbor seals include boat strikes, entrainment in power plant intakes (12-20 per year; NMFS unpublished data), oil contamination, shooting (around salmon aquaculture sites and fixed fishing gear), storms, abandonment by the mother, and disease (Katona et al. 1993; NMFS unpublished data).

Gray Seal

Current estimates of the total western Atlantic gray seal population are not available; although estimates of portions of the stock are available for select time periods. The size of the Canadian population from 1993 to 2004 has been estimated from three surveys. A 1993 survey estimated the population at 144,000 animals (Mohn and Bowen 1996; DFO 2003), a 1997 survey estimated 195,000 (DFO 2003), and a 2004 survey obtained estimates ranging between 208,720 (SE=29,730) and 223,220 (SE=17,376) depending upon the model used (Trzcinski *et al.* 2005). The population at Sable Island had been increasing by approximately 13% per year for nearly 40 years (Bowen *et al.* 2003), but the most recent (2004) survey results indicated that this rate of population increase has declined to 7% (Trzcinski *et al.* 2005; Bowen *et al.* 2007). The non-Sable Island (Gulf of St Lawrence and Eastern Shore) abundance has increased from 20,900 (SE=200) in 1970 to 52,500 (SE=7,800) in 2004 (Hammill 2005).

In U.S. waters, gray seals currently pup at three established colonies: Muskeget Island, Massachusetts; Green Island, Maine; and Seal Island, Maine; as well as, more recently, at Matinicus Rock in Maine. They have been observed using the historic pupping site on Muskeget Island in Massachusetts since 1990. Pupping has taken place on Seal and Green Islands in Maine since at least the mid-1990s. Aerial survey data from these sites indicate that pup production is increasing.

Gray seals are also observed in New England outside of the pupping season. In April-May 1994, a maximum count of 2,010 was obtained for Muskeget Island and Monomoy combined (Rough 1995). Maine coast-wide surveys conducted during summer revealed 597 and 1,731 gray seals in 1993 and 2001, respectively (Gilbert *et al.* 2005). In March 1999, a maximum count of 5,611 was obtained in the region south of Maine (between Isles of Shoals, Maine and Woods Hole, Massachusetts) (Barlas 1999). No gray seals were recorded at haul-out sites between Newport, Rhode Island and Montauk Pt., New York (Barlas 1999), although, more recently several hundred gray seals have been recorded in surveys conducted off eastern Long

Island (R. DiGiovanni, pers. comm., The Riverhead Foundation, Riverhead, NY). Depending on the model used, the minimum population estimate for the Canadian gray seal population was estimated to range between 125,541 and 169,064 (Trzcinski et al. 2005). Present data are insufficient to calculate the minimum population estimate for U.S. waters (Waring et al., 2012). PBR for U.S. waters is also unknown (Waring et al., 2012).

Gray seals, like harbor seals, were hunted for bounty in New England waters until the late 1960s. This hunt may have severely depleted the stock in U.S. waters (Rough, 1995). In Canada, gray seals were hunted for several centuries by indigenous people and European settlers in the Gulf of St. Lawrence and along the Nova Scotia eastern shore, and were locally extirpated (Lavigueru and Hammill, 1993). By the mid-1900s, gray seals were considered to be rare, and in the mid-1960s, the population in eastern Canada was estimated to be 5,600 (Mansfield, 1966). Since the mid-1960s the population has been increasing. During a bounty program (1976-1983) and a culling program (1967-1983), the average annual removals were 720 and 1,000 seals, respectively (Fisheries and Oceans Canada, 2001). From 1993 through 2000, the annual kill of gray seals by hunters was: 1993 (0), 1994 (40), 1995 (364), 1996 (132), 1997 (72), 1998 (275), 1999 (98), and 2000 (342) (Waring et al., 2003). The traditional hunt continued in 2002 and 2003, with 76 and 126 gray seals taken, respectively, off the Magdalen Islands and in other areas, except Sable Island, where commercial hunting is not permitted (Fisheries and Oceans Canada, 2003).

An unknown level of mortality also occurs in the mariculture industry (*i.e.*, salmon farming) and by deliberate shooting (NMFS, unpublished data). In addition, the Cape Cod stranding network has documented several animals with netting or plastic debris around their necks in the Cape Cod/Nantucket area. Between 1997 and 2001, 197 gray seal strandings were recorded, extending from Maine (25) to North Carolina (1). Most of the strandings occurred in Massachusetts (72), followed by New York (55), and Maine (25). Twenty-three animals showed signs of human interactions: fishery (8), power plant (3), oil spill (6), shot (1), mutilated (1), boat strike (1), and other (3) (Waring et al., 2003). Stranding data probably underestimate the extent of fishery-related mortality and serious injury because not all of the marine mammals that die or are seriously injured wash ashore, nor will all of those that do wash ashore necessarily show signs of entanglement or other fishery interaction.

For the period 2006-2010, the total estimated human caused mortality and serious injury to gray seals was 5,253 per year. The average was derived from five components: 1) 853 from the 2006-2010 U.S. observed fishery; 2) 6 from average 2006-2010 non-fishery related, human interaction stranding mortalities (NMFS unpublished data); 3) 1079 from average 2006-2010 kill in the Canadian hunt; 4) 23 from DFO scientific collections; and 5) 3,292 removals of nuisance animals in Canada. The 794 annual average mortalities or serious injuries in U.S. fisheries are attributed to the Northeast sink gillnet fishery (Waring et al., 2013).

Harp Seal

The harp seal (*Phoca groenlandica*) occurs throughout much of the North Atlantic and Arctic Oceans and has been increasing off the East Coast of the United States from Maine to New Jersey. Harp seals are usually found off the U.S. from January to May, when the western

stock of harp seals is at its most southern point of migration (Waring et al., 2003). Harp seals congregate on the edge of the pack ice from February through April, when breeding and pupping take place. The harp seal is highly migratory, moving north and south with the edge of the pack ice. Non-breeding juveniles will migrate the farthest south in the winter, but the entire population moves north toward the Arctic in the summer. The best estimate of abundance for western North Atlantic harp seals is 8.3 million (95% CI 7.5-8.9 million; DFO 2011, in review). Data are insufficient to calculate the minimum population estimate for U.S. waters (Waring et al., 2013). The maximum productivity rate is assumed to be 0.12, the default value for pinnipeds. The recovery factor, which accounts for endangered, depleted, threatened stocks, or stocks of unknown status relative to OSP is set at 1.0 because the population is increasing. PBR for the western North Atlantic harp seal in U.S. waters is unknown. PBR for the stock in US waters is unknown (Waring et al., 2013).

A large number of harp seals are killed in Canada, Greenland, and the Arctic. In 2008 the Canadian TAC was increased to 275,000 (268,050 commercial hunt, 4,950 for aboriginal, and 2,000 for personal use). In 2009, the TAC was 280,000, and in 2010 it was 330,000 (Waring et al., 2012).

For the period 2006- 2010, the total estimated annual human caused mortality and serious injury to harp seals was 379,672. This is derived from three components: 1) an average catch of 379,387 seals from 2006-2010 by Canada and Greenland, including bycatch in the lumpfish fishery; 2) 281 harp seals (CV=0.19) from the observed U.S. fisheries; and 3) average of 4 stranded seals from 2006-2010 with signs of non-fishery human interactions (Waring et al., 2013). The 281 mortalities or serious injuries in U.S. fisheries are distributed as follows: 218 in the Northeast sink gillnet fishery and 63 in the Mid-Atlantic gillnet fishery (Waring et al., 2013). There are 0.2 seals killed in the Northeast bottom trawl fishery.

4.3.2.5 Sea Turtles

Kemp's ridley, loggerhead, leatherback, green, and hawksbill sea turtles spend all or part of the year in the waters potentially affected by new ALWTRP regulations. Sea turtles continue to be affected by many of the original threats that prompted their ESA listing, including interactions with fishing gear, degradation of nesting beach sites, poaching, nesting predation, vessel strikes, channel dredging, and marine pollution (including ingestion of marine debris[29]) (Lutcavage et al., 1997). Few of these impacts, however, have been quantified with any degree of confidence. Observer programs implemented for dredging and some commercial fisheries have begun to measure the effects of these activities on sea turtle populations.

[29] Marine turtles have been found to ingest a wide variety of ocean debris such as plastic bags, raw plastic pellets, plastic and Styrofoam pieces, and tar ball sand balloons. Effects of debris ingestion can include direct obstruction of the gut, absorption of toxic byproducts, and reduced absorption of nutrients across the gut wall.

Kemp's Ridley Sea Turtle

Less than fifty years ago, the Kemp's ridley (*Lepidochelys kempii*) was an abundant sea turtle in the Gulf of Mexico. Since then, the Kemp's ridley has experienced one of the most dramatic population declines recorded for any animal. The Kemp's ridley was listed as endangered under the ESA on December 2, 1970. Internationally, the Kemp's ridley is considered to be the most endangered sea turtle and is protected from international trade.

The majority of Kemp's ridleys nest along a single stretch of beach near Rancho Nuevo, Tamaulipas, Mexico (Carr 1963; NMFS and USFWS 2007c; NMFS et al. 2011). The number of nesting females in the Kemp's ridley population declined dramatically from the late 1940s through the mid-1980s, with an estimated 40,000 nesting females in a single *arribada* in 1947 and fewer than 300 nesting females in the entire 1985 nesting season (TEWG 2000; NMFS et al. 2011). Conservation efforts by Mexican and U.S. agencies have aided this species by eliminating egg harvest, protecting eggs and hatchlings, and reducing at-sea mortality through fishing regulations (TEWG 2000). Since the mid-1980s, the number of nests observed at Rancho Nuevo and nearby beaches has increased 14-16% per year (Heppell *et al.* 2005), allowing cautious optimism that the population is on its way to recovery. An estimated 5,500 females nested in the State of Tamaulipas over a three-day period in May 2007 and more than 4,000 of those nested at Rancho Nuevo (NMFS and USFWS 2007c). However, events such as the Deepwater Horizon oil release, and stranding events associated increased skimmer trawl use and poor TED compliance in the northern Gulf of Mexico which may dampen recent population growth.

A revised bi-national recovery plan was published for public comment in 2010, and in September 2011, NMFS, USFWS, and the Secretary of Environment and Natural Resources, Mexico (SEMARNAT) released the second revision to the Kemp's ridley recovery plan. As with the other sea turtle species, fishery mortality accounts for a large proportion of annual human-caused mortality outside the nesting beaches, while other significant threats facing Kemp's ridleys include degradation of nesting beach habitat from human development; marine pollution[30] and floating debris; channel dredging, and offshore oil and gas exploration operations.[31] An estimated 500 to 5,000 benthic immature and adult Kemp's ridley mortalities were attributed to shrimp trawling prior to the implementation of TED regulations (NRC, 1990).[32] Although modifications to shrimp trawls have helped to reduce mortality of Kemp's ridleys, a recent assessment by Finkbeiner et al. (2011) found that the Southeast/Gulf of Mexico shrimp trawl fishery remained responsible for the vast majority of U.S. fishery interactions (up to

[30] The impact of heavy metals and pesticides on the physiology and behavior of sea turtles is not documented. Because Kemp's ridley is a carnivore, however, the species is vulnerable to the bio-accumulation of chemicals. In addition, intensive industrial and agricultural development along the northern Gulf coast raises the potential for increased levels of chemical exposure for the species.

[31] The Gulf of Mexico is an area of high-density offshore oil extraction with chronic, low-level spills and occasional massive spills (such as the April 2010 BP Deepwater Horizon explosion). The two primary feeding grounds for adult Kemp's ridleys in the northern and southern Gulf of Mexico are both near major areas of near-shore and off-shore oil exploration and production.

[32] This compares to 75 to 750 estimated mortalities due to all other known human causes.

98%) and mortalities (more than 80%; all species combined). Kemp's ridleys are known to have been incidentally taken in other types of fishing gear as well, such as hook and line gear, gill nets, trawls, dip nets, beach and purse seines, pound nets, cast nets, butterfly nets, and crab traps/pots (Manzella et al. 1988, Marquez et al. 1989, NMFS, 2006). Stranding reports indicate that from 2008-2011, an average of approximately 430 Kemp's ridley turtles stranded annually along the Eastern U.S. coast from a variety of causes, most of which are unknown (NMFS STSSN database). For more detailed information on interactions between Kemp's ridley turtles and ALWTRP-related gear, see Chapter 9, section 9.4.2.5.

Loggerhead Sea Turtle

The loggerhead sea turtle (*Caretta caretta*) is the most abundant sea turtle in U.S. waters. The loggerhead sea turtle was listed as threatened under the ESA on July 28, 1978, but is considered endangered by the International World Conservation Union (IUCN). In 2009, a status review team identified the following nine DPSs as being discrete from other conspecific population segments and significant to the species: (1) North Pacific Ocean, (2) South Pacific Ocean, (3) North Indian Ocean, (4) Southeast Indo-Pacific Ocean, (5) Southwest Indian Ocean, (6) Northwest Atlantic Ocean, (7) Northeast Atlantic Ocean, (8) Mediterranean Sea, and (9) South Atlantic Ocean (Conant *et al.* 2009). On September 22, 2011, NMFS and USFWS issued a final rule (76 FR 58868), determining that the loggerhead sea turtle is composed of nine DPSs (as defined in Conant *et al*., 2009) that constitute the species that may be listed as threatened or endangered under the ESA. Five DPSs were listed as endangered (North Pacific Ocean, South Pacific Ocean, North Indian Ocean, Northeast Atlantic Ocean, and Mediterranean Sea), and four DPSs were listed as threatened (Northwest Atlantic Ocean, South Atlantic Ocean, Southeast Indo-Pacific Ocean, and Southwest Indian Ocean). The DPS found within this action area is the Northwest Atlantic Ocean DPS. NMFS is participating in a comprehensive research program (Atlantic Marine Assessment Program for Protected Species (AMAPPS)) to assess the distribution of marine mammals, sea turtles, and sea birds in U.S. waters of the western North Atlantic. Four species of sea turtles were documented during the 2011 surveys, including two loggerhead sea turtles in the central Gulf of Maine during the winter surveys, which is a rare sighting for the wintertime (NMFS 2011).

Loggerheads are circumglobal, inhabiting continental shelves, bays, estuaries, and lagoons in temperate, subtropical, and tropical waters. They commonly occur throughout the inner continental shelf from Florida through Cape Cod, Massachusetts. Loggerhead sea turtles are found in Virginia foraging areas as early as April, but are not usually found on the most northern foraging grounds in the Gulf of Maine until June. The large majority leave the Gulf of Maine by mid-September, but some may remain in Mid-Atlantic and northeast waters until late fall. During November and December, loggerheads seem to concentrate in nearshore and southerly areas influenced by warmer Gulf Stream waters off North Carolina. Summer nesting usually occurs in the lower latitudes. Primary Atlantic nesting sites are along the east coast of Florida, with additional sites in Georgia, the Carolinas, and the Gulf Coast of Florida. In the 2008 recovery plan, the Loggerhead Recovery Team designated five recovery units for the Northwest Atlantic population of loggerhead sea turtles based on nesting assemblages: (1) the Northern Recovery Unit (NRU: Florida/Georgia border through southern Virginia), (2) the Peninsular Florida Recovery Unit (PFRU: Florida/Georgia border through Pinellas County, Florida), (3) the Dry Tortugas Recovery Unit (DTRU: islands located west of Key West,

Florida), (4) the Northern Gulf of Mexico Recovery Unit (NGMRU: Franklin County, Florida through Texas), and (5) the Greater Caribbean Recovery Unit (GCRU: Mexico through French Guiana, Bahamas, Lesser Antilles, and Greater Antilles).

From the beginning of Florida standardized index surveys in 1989 until 1998, the PFRU, the largest nesting assemblage in the Northwest Atlantic by an order of magnitude, had a significant increase in the number of nests. However, from 1998 through 2008, there was a 41% decrease in annual nest counts from index beaches, which represent an average of 70% of the statewide nesting activity (NMFS and USFWS 2008). From 1989-2008, the PFRU had an overall declining nesting trend of 26% (95% CI: -42% to -5%; NMFS and USFWS 2008). With the addition of nesting data through 2010, the nesting trend for the PFRU does not show a nesting decline statistically different from zero (76 FR 58868, September 22, 2011). The NRU, the second largest nesting assemblage of loggerheads in the United States, has been declining at a rate of 1.3% annually since 1983 (NMFS and USFWS 2008). The NRU dataset included 11 beaches with an uninterrupted time series of coverage of at least 20 years; these beaches represent approximately 27% of NRU nesting (in 2008). Through 2008, there was strong statistical data to suggest the NRU has experienced a long-term decline, but with the inclusion of nesting data through 2010, nesting for the NRU is showing possible signs of stabilizing (76 FR 58868, September 22, 2011). Evaluation of long-term nesting trends for the NGMRU is difficult because of changed and expanded beach coverage. However, the NGMRU has shown a significant declining trend of 4.7% annually since index nesting beach surveys were initiated in 1997 (NMFS and USFWS 2008). No statistical trends in nesting abundance can be determined for the DTRU because of the lack of long-term data. Similarly, statistically valid analyses of long-term nesting trends for the entire GCRU are not available because there are few long-term standardized nesting surveys representative of the region. Additionally, changing survey effort at monitored beaches and scattered and low-level nesting by loggerheads at many locations currently precludes comprehensive analyses (NMFS and USFWS 2008).

Significant threats to loggerhead populations in the Atlantic include commercial fisheries, coastal development and erosion of nesting beaches, pollution (including ingestion of marine debris), marine habitat degradation and vessel strikes. Specifically, loggerhead turtles are captured and injured or killed in interactions with a variety of fishing gear, including pots, gillnets, pelagic longlines, trawls, pound nets, and scallop dredges (NMFS and USFWS 2008). Stranding reports indicate that from 2008-2011, an average of approximately 1,100 loggerhead turtles stranded annually along the Eastern U.S. coast from a variety of causes, most of which are unknown (NMFS STSSN database). See Chapter 9, section 9.4.2.5 for detailed information on these interactions.

Leatherback Sea Turtle

The leatherback sea turtle (*Dermochelys coriacea*) is the largest living turtle and is distinct from other sea turtle species because of its rubber-like, flexible carapace. Like the loggerhead, the leatherback is circumglobal. In the northwestern Atlantic, the leatherback turtle's range extends from Nova Scotia, south to Puerto Rico and the U.S. Virgin Islands. Nesting occurs from February through July at sites located from Georgia to the U.S. Virgin Islands.

During the summer, leatherbacks tend to be found along the east coast of the U.S. from the Gulf of Maine south to Florida.

Listed as endangered on June 2, 1970, the leatherback population was estimated at approximately 115,000 adult females globally in 1980 (Pritchard 1982). By 1995, this global population of adult females was estimated to have declined to 34,500 (Spotila *et al.* 1996). The most recent population size estimate for the North Atlantic alone is a range of 34,000-94,000 adult leatherbacks (TEWG 2007). Thus, there is substantial uncertainty with respect to global population estimates of leatherback sea turtles. In 1979, the waters adjacent to Sandy Point, St. Croix, U.S. Virgin Islands were designated as critical habitat for the leatherback sea turtle.

The TEWG reports an increasing or stable nesting trend for five of the seven populations or groups of populations that were identified as occurring within the Atlantic, with the exceptions of the Western Caribbean and West Africa groups. The leatherback rookery along the northern coast of South America in French Guiana and Suriname supports the majority of leatherback nesting in the western Atlantic (TEWG 2007), and represents more than half of total nesting by leatherback sea turtles worldwide (Hilterman and Goverse 2004). The TEWG (2007) report indicates that a positive population growth rate was found for French Guinea and Suriname using nest numbers from 1967-2005, a 39-year period, and that there was a 95% probability that the population was growing. An analysis of Florida's index nesting beach sites from 1989-2006 shows a substantial increase in leatherback nesting in Florida during this time, with an annual growth rate of approximately 1.17 (TEWG 2007).

As with the other sea turtle species, mortality due to fisheries interactions (including trawl, gillnet, pelagic longline, and trap/pot gear) accounts for a large proportion of annual human-caused mortality outside the nesting beaches, while other activities like pollution (including ingesting marine debris), habitat destruction, and vessel strikes account for an unknown level of other anthropogenic mortality. Stranding reports indicate that from 2008-2011, an average of approximately 50 leatherback turtles stranded annually along the Eastern U.S. coast from a variety of causes, most of which are unknown (NMFS STSSN database). The effect of climate change may also effect leatherbacks in yet unknown ways. This may include changes in the distribution of prey species like jellyfish (Purcell, 2012). The long-term recovery potential of this species may be further threatened by observed low genetic diversity, even in the largest nesting groups (NMFS and USFWS 2007b). For detailed information on fishing gear interactions, see Chapter 9, section 9.4.2.5.

Green Sea Turtle

Green sea turtles (*Chelonia mydas*) are distributed circumglobally. In the western Atlantic they range from Massachusetts to Argentina, including the Gulf of Mexico and Caribbean, but are considered rare north of Cape Hatteras (Wynne and Schwartz, 1999). Green turtles were traditionally highly prized for their flesh, fat, eggs, and shell, and directed fisheries in the U.S. and throughout the Caribbean are largely to blame for the decline of the species. In the Gulf of Mexico, green turtles were once abundant enough in the shallow bays and lagoons to support a commercial fishery. However, declines in the turtle fishery throughout the Gulf of Mexico were evident by 1902 (Doughty, 1984).

In 1978, the Atlantic population of green sea turtles was listed as threatened under the ESA, except for the breeding populations in Florida and on the Pacific coast of Mexico, which were listed as endangered. As it is difficult to differentiate between breeding populations away from the nesting beaches, all green sea turtles in the water are considered endangered. The waters surrounding the island of Culebra, Puerto Rico, and its outlying keys are designated critical habitat for the green sea turtle.

By far, the most important nesting concentration for green sea turtles in the western Atlantic is in Tortuguero, Costa Rica (NMFS and USFWS 2007d). Nesting in the area has increased considerably since the 1970s, and nest count data from 1999-2003 suggest nesting by 17,402-37,290 females per year (NMFS and USFWS 2007d). In the continental United States, green turtle nesting occurs on the Atlantic coast of Florida (Ehrhart, 1979). Occasional nesting has been documented along the Gulf coast of Florida, at southwest Florida beaches, and at beaches on the Florida panhandle (Meylan et al., 1995). The pattern of green turtle nesting shows biennial peaks in abundance, with a generally positive trend since establishment of the Florida index beach surveys in 1989, perhaps due to increased protective legislation throughout the Caribbean (Meylan et al., 1995) as well as protections in Florida and throughout the United States (NMFS and USFWS 2007d). Recent population estimates for the western Atlantic area are not available.

As is the case for loggerhead and Kemp's ridley sea turtles, green sea turtles use Mid-Atlantic and northern areas of the western Atlantic coast as important summer developmental habitat. Like other marine turtle species, green turtle hatchlings initially enter the pelagic environment. After reaching a certain size, juveniles enter benthic foraging areas where they consume a primarily herbivorous diet. Along the U.S. western Atlantic coast, green turtles are found in estuarine and coastal waters as far north as Long Island Sound, Chesapeake Bay, and North Carolina (Musick and Limpus, 1997). Like loggerheads and Kemp's ridleys, green sea turtles that use northern waters during the summer must return to warmer waters when water temperatures drop, or face the risk of cold stunning.[33] Cold stunning of green turtles may occur in southern areas as well (i.e., Indian River, Florida), as these natural mortality events are dependent on water temperatures and not solely geographical location.

Green turtles face many of the same natural threats as loggerhead and Kemp's ridley sea turtles. In addition, green turtles appear to be susceptible to fibropapillomatosis, an epizootic disease producing lobe-shaped tumors on the soft portion of a turtle's body. Juveniles are most commonly affected. The occurrence of fibropapilloma tumors may result in impaired foraging, breathing, or swimming ability, leading potentially to death. Stranding reports indicate that from 2008-2011, an average of approximately 900 green turtles stranded annually along the Eastern U.S. coast from a variety of causes, most of which are unknown (NMFS STSSN database).

As with the other sea turtle species, fishery mortality accounts for a large proportion of annual human-caused mortality outside the nesting beaches, while other activities like dredging, pollution, and habitat destruction account for an unknown level of other mortality. Sea sampling

[33] Cold stunning refers to the condition observed in sea turtles that have been exposed to very sudden decreases in water temperature. Affected animals generally become lethargic and float to the surface. In extreme cases, death may occur.

coverage in the pelagic driftnet, pelagic longline, southeast shrimp trawl, and summer flounder bottom trawl fisheries has recorded takes of green turtles.

Hawksbill Sea Turtle

The hawksbill sea turtle (*Eretmochelys imbricata*) is relatively uncommon in the waters of the Northeast or Mid-Atlantic. Hawksbills prefer coral reefs, such as those found in the Caribbean and Central America, where they feed primarily on a wide variety of sponges and mollusks. There are accounts of small hawksbills stranded as far north as Cape Cod, Massachusetts; however, many of these strandings were observed after hurricanes or offshore storms. Stranding reports indicate that from 2008-2011, an average of approximately 20 hawksbill turtles stranded annually along the Eastern U.S. coast from a variety of causes, most of which are unknown (NMFS STSSN database). No fisheries-related takes of hawksbill sea turtles have been observed in the Northeast or Mid-Atlantic (NMFS, 2003a).

4.3.2.6 Atlantic Sturgeon

The Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) is a subspecies of sturgeon distributed along the eastern coast of North America from Hamilton Inlet, Labrador, Canada to Cape Canaveral, Florida, U.S. (Scott and Scott, 1988; ASSRT, 2007; T. Savoy, CT DEP, pers. comm.). NMFS has delineated U.S. populations of Atlantic sturgeon into five DPSs[34] (77 FR 5880 and 77 FR 5914). These are: the Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs. The results of genetic studies suggest that natal origin influences the distribution of Atlantic sturgeon in the marine environment (Wirgin and King, 2011). However, genetic data as well as tracking and tagging data demonstrate sturgeon from each DPS and Canada occur throughout the full range of the subspecies. Therefore, sturgeon originating from any of the 5 DPSs can be affected by threats in the marine, estuarine and riverine environment that occur far from natal spawning rivers.

On February 6, 2012, a notice in the *Federal Register* was published that the New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs were being listed as "endangered," and the Gulf of Maine DPS was being listed as "threatened" (77 FR 5880 and 77 FR 5914). The effective date of the listings is April 6, 2012. The DPSs do not include Atlantic sturgeon that are spawned in Canadian rivers. Therefore, Canadian spawned fish are not included in the listings.

Atlantic sturgeon are long lived (approximately 60 years), late maturing, estuarine dependent, anadromous[35] fish (Bigelow and Schroeder, 1953; Vladykov and Greeley 1963; Mangin, 1964; Pikitch *et al.*, 2005; Dadswell, 2006; ASSRT, 2007). After emigration from the natal estuary, subadults and adults travel within the marine environment, typically in waters less

[34] To be considered for listing under the ESA, a group of organisms must constitute a "species." A "species" is defined in section 3 of the ESA to include "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature."

[35] Anadromous refers to a fish that is born in freshwater, spends most of its life in the sea, and returns to freshwater to spawn (NEFSC FAQ's, available at http://www.nefsc.noaa.gov/faq/fishfaq1a.html, modified June 16, 2011).

than 50 m in depth, using coastal bays, sounds, and ocean waters (Vladykov and Greeley, 1963; Murawski and Pacheco, 1977; Dovel and Berggren, 1983; Smith, 1985; Collins and Smith, 1997; Welsh *et al.*, 2002; Savoy and Pacileo, 2003; Stein *et al.*, 2004; Laney *et al.*, 2007; Dunton *et al.*, 2010; Erickson *et al.*, 2011; Wirgin and King, 2011).

Atlantic sturgeon underwent significant range-wide declines from historical abundance levels due to overfishing in the mid to late 19th century when a caviar market was established (Scott and Crossman, 1973; Taub, 1990; Kennebec River Resource Management Plan, 1993; Smith and Clugston, 1997; Dadswell, 2006; ASSRT, 2007). Abundance of spawning-aged females prior to this period of exploitation was predicted to be greater than 100,000 for the Delaware River, and at least 10,000 females for other spawning stocks (Secor and Waldman, 1999; Secor, 2002). Historical records suggest that Atlantic sturgeon spawned in at least 35 rivers prior to this period. Currently, only 16 U.S. rivers are known to support spawning based on available evidence (i.e., presence of young-of-year or gravid Atlantic sturgeon documented within the past 15 years) (ASSRT, 2007). While there may be other rivers supporting spawning for which definitive evidence has not been obtained (e.g., in the Penobscot and York rivers), the number of rivers supporting spawning of Atlantic sturgeon are approximately half of what they were historically. In addition, only four rivers (Kennebec, Hudson, Delaware, James) are known to currently support spawning from Maine through Virginia where historical records support there used to be fifteen spawning rivers (ASSRT, 2007). Thus, there are substantial gaps in the range between Atlantic sturgeon spawning rivers amongst northern and Mid-Atlantic states which could make recolonization of extirpated populations more difficult.

Based on the best available information, NMFS has concluded that unintended catch of Atlantic sturgeon in fisheries, vessel strikes, poor water quality, water availability, dams, lack of regulatory mechanisms for protecting the fish, and dredging are the most significant threats to Atlantic sturgeon (77 FR 5880 and 77 FR 5914; February 6, 2012). While all of the threats are not necessarily present in the same area at the same time, given that Atlantic sturgeon subadults and adults use ocean waters from Labrador, Canada to Cape Canaveral, FL, as well as estuaries of large rivers along the U.S. East Coast, activities affecting these water bodies are likely to impact more than one Atlantic sturgeon DPS. In addition, given that Atlantic sturgeon depend on a variety of habitats, every life stage is likely affected by one or more of the identified threats.

Bycatch in U.S. waters is the primary threat faced by all 5 DPSs. At this time, there is an estimate of the number of Atlantic sturgeon captured and killed in sink gillnet and otter trawl fisheries authorized by Federal FMPs (NMFS 2011) in the Northeast Region but there is not a similar estimate for Southeast fisheries. Also, there is not an estimate of the number of Atlantic sturgeon captured or killed in state fisheries. At this time, the effects of other significant threats (e.g., vessel strikes, poor water quality, water availability, dams, and dredging) cannot be quantified in terms of habitat impacts or loss of individuals. While there is some information on the number of mortalities that have occurred in the past in association with certain activities (e.g., mortalities in the Delaware and James rivers that are thought to be due to vessel strikes), those numbers cannot be used to extrapolate effects throughout one or more DPSs. This is because of: (1) the small number of data points and (2) lack of information on the percent of incidences that the observed mortalities represent.

As noted above, the NEFSC prepared an estimate of the number of encounters of Atlantic sturgeon in fisheries authorized by Northeast FMPs (NEFSC 2011). The analysis prepared by the NEFSC estimates that from 2006 through 2010 there were 2,250 to 3,862 encounters per year in observed gillnet and trawl fisheries, with an average of 3,118 encounters. Mortality rates in gillnet gear are approximately 20%, with the exception of monkfish gear which has a higher mortality rate of approximately 27%. Mortality rates in otter trawl gear are believed to be lower at approximately 5%.

4.4 HABITAT

Modification of the ALWTRP may also affect essential fish habitat (EFH). Under the Magnuson-Stevens Act (MSA) (16 U.S.C. 1801), EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity" (16 U.S.C. 1802(10)). To help guide regional Fisheries Management Councils (Councils) in the implementation of EFH provisions, regulations developed by the National Marine Fisheries Service encourage Councils to identify Habitat Areas of Particular Concern (HAPCs) (50 CFR 600 Subpart J; 62 FR 66531; 67 FR 2343). HAPCs are subsets of EFH which are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPCs are not afforded any additional regulatory protection under the MSA; however, Federal projects with potential adverse impacts to HAPCs must be more carefully scrutinized.

This section has three basic objectives:

- First, it defines the EFH and HAPCs associated with the Atlantic trap/pot and anchored gillnet fisheries regulated by the ALWTRP.
- Second, it describes key components of lobster habitat in detail.
- Finally, it discusses how the ALWTRP can influence habitat, with a particular focus on potential disturbances to benthic habitat.

4.4.1 Identification of EFH

The 1996 re-authorization of the MSA requires that NMFS and the regional Fisheries Management Councils (Councils) specifically describe and identify EFH. In addition, the MSA requires that FMPs minimize, to the extent practicable, adverse effects on EFH caused by fishing activities. According to the EFH regulations found at 50 CFR 600, information necessary to identify EFH for each managed species includes its geographic range and habitat requirements by life stage; the distribution and characteristics of those habitats; and current and historic stock size as it affects occurrence in available habitats (50 CFR 600.815(a)(1)(ii)(A)). Information on the temporal and spatial distribution of each life history stage is needed to understand each species' relationship to, or dependence on, its various habitats.

Atlantic trap/pot and anchored gillnet fisheries are geographically widespread on the Atlantic coast and target a diverse array of fish and shellfish species. In the context of this EIS, EFH includes the habitat for all target species, non-target species, prohibited species, other species, and their prey. Therefore, when viewed in the aggregate, across all species, EFH is all pelagic and benthic habitat in the Atlantic EEZ. It is important to note that corals are currently not listed as EFH in the Northeast. However, they have been included as a component of EFH for managed species in the region that rely on complex hard bottom habitats where corals and other types of structure-forming organisms are found. Currently, the only deep-water reef system recognized specifically as EFH in Atlantic waters is the *Oculina* Banks ivory tree coral reef, located near the 80m depth contour approximately 15 miles off the east-central coast of Florida. The special significance of this area as spawning habitat for snapper-grouper species has been recognized and resulted in this EFH designation.

4.4.2 Identification of HAPCs

The EFH regulations developed by NMFS encourage regional Fisheries Management Councils to identify Habitat Areas of Particular Concern (HAPCs) within areas designated as EFH. The intent of this action is to help focus conservation priorities on specific habitat areas that play a particularly important role in the life cycles of federally managed fish species (Dobrzynski and Johnson, 2001).

HAPCs are defined based on the following criteria:

- the importance of the ecological function provided by the habitat;
- the extent to which the habitat is sensitive to human-induced environmental degradation;
- whether and to what extent development activities are or will be stressing the habitat; and
- the rarity of the habitat type.

As the implementation of EFH regulations is subject to the discretion of the Councils, the designation of HAPCs has been approached in various ways. The following sections summarize the HAPCs designated by the Councils for EFH in the Atlantic EEZ, as described in "Regional Council Approaches to the Identification and Protection of Habitat Areas of Particular Concern" (Dobrzynski and Johnson, 2001).

4.4.2.1 New England Fishery Management Council (NEFMC) HAPCs

The NEFMC has designated discrete geographic areas as HAPCs for two of its managed species (NEFMC Amendments, 1998): Atlantic cod and Atlantic salmon. These areas are discussed below.

Atlantic Cod

For juvenile Atlantic cod, the NEFMC has designated a gravel/cobble bottom area on the northern edge of Georges Bank as an HAPC. This area meets the first criterion for an HAPC of providing an important ecological function, in that the gravel/cobble substrate provides a place for newly settled juvenile cod to find shelter from predation, helping to decrease typically high mortality rates associated with the juvenile life stage. In addition, these areas are typically rich in important prey items. This habitat also meets the second HAPC criterion of sensitivity to human-induced environmental degradation, in that it is vulnerable to fishing practices that use mobile fishing gear.

Atlantic Salmon

The NEFMC has designated eleven rivers in Maine as HAPCs for juvenile Atlantic salmon: the Dennys, Machias, East Machias, Pleasant, Narraguagus, Ducktrap, Kennebec, Penobscot. St. Croix, Tunk Stream, and Sheepscot Rivers provide habitat for the distinct population segment of Atlantic salmon. These rivers are also extremely vulnerable to anthropogenic threats, thus fulfilling the first two criteria for designation of an HAPC: provision of an important ecological function and sensitivity to human-induced environmental degradation.

4.4.2.2 Mid-Atlantic Fishery Management Council (MAFMC) HAPCs

The MAFMC has designated HAPCs for summer flounder and tilefish. HAPCs have not been designated for other species under the MAFMC's jurisdiction due to a lack of information linking habitat type with recruitment success.

Summer Flounder

Aggregations of submerged aquatic vegetation (SAV), defined as rooted, vascular, flowering plants that, except for some flowering structures, live and grow beneath the surface, have been identified as HAPCs for summer flounder. More specifically, this designation includes all native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations used by adults and juveniles. These HAPCs meet the first criterion of an important ecological function, in that they provide both shelter from predators and sources of prey for the juvenile and larval stages of summer flounder (MAFMC 1998).

Tilefish

Clay outcrop (or "pueblo village") habitats in four submarine canyons on the outer continental shelf at depths between 100 and 300 meters (MAFMC 2008). (This habitat type is also referred to as a "pueblo village" – see Offshore Lobster Habitat, section 4.4.3.2). The four canyons are Norfolk, Veatch, Lydonia, and Oceanographer canyons. These HAPCs meet three of the criteria required for designation: 1) they provide shelters for tilefish, which live in burrows that they dig in the clay; 2) this habitat type is rare, occurring only in areas on the outer continental shelf like the canyons where Pleistocene clay deposits are exposed; and 3) they are highly susceptible to damage and loss from any type of disturbance, such as that caused by mobile, bottom-tending fishing gear. In addition, these four canyons have been added to the National System of Marine Protected Areas (see Section 12.13).

4.4.2.3 Atlantic Highly Migratory Species (HMS) HAPCs

Sandbar Sharks

HAPCs for Atlantic highly migratory species have been identified only for sandbar sharks. A general lack of information detailing HMS-habitat associations has prohibited the designation of HAPCs for other species in this management group. The Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks (NMFS 1999) has identified HAPCs for sandbar sharks in important nursery and pupping grounds found in shallow areas and the mouth of the Great Bay, NJ; lower and middle Delaware Bay; lower Chesapeake Bay; and near the Outer Banks, NC in areas of Pamlico Sound adjacent to and offshore of Hatteras and Ocracoke Islands. This habitat fulfills the first HAPC criterion of providing an important ecological function.

4.4.2.4 South Atlantic Fishery Management Council (SAFMC) HAPCs

Unlike other Councils, the SAFMC has designated HAPCs for all of the species covered under a given fishery management plan (FMP), rather than for individual species. HAPCs have been designated broadly under SAFMC's EFH Comprehensive Amendment (SAFMC, 1998), including both general habitat types and specific areas of ecological importance identified in the appropriate FMP. HAPC criteria are not specified for individual habitats, but the designations are justified as enabling the Council to effectively protect EFH and take timely action to manage fisheries in HAPCs, when needed. HAPCs have been designated by the SAFMC for species under a number of FMPs, as discussed below.

Penaeid Shrimp

HAPCs for penaeid shrimp include all coastal inlets; all state-designated nursery habitats of particular importance to shrimp; and state-identified overwintering areas.

Red Drum

HAPCs identified for red drum include all state-designated nursery habitats of particular importance to red drum; documented sites of spawning aggregations in NC, SC, GA, and FL described in the Habitat Plan; other spawning areas identified in the future; and SAV-identified areas.

Snapper-Grouper Management Unit

For the fish species in the snapper-grouper management unit, the SAFMC has identified the following HAPCs: medium to high profile offshore hard bottoms where spawning normally occurs; areas of known or likely spawning aggregations; nearshore hard bottom area; the Point; the Ten Fathom Ledge; Big Rock; the Charleston Bump; mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper/grouper; pelagic and benthic *Sargassum*; Hoyt Hills for wreckfish; the Oculina Bank Habitat Area of Particular Concern; all hermatypic (involved in reef formation) coral habitats and reefs; Manganese outcroppings on the Blake Plateau; and Council-designated Artificial Reef Special Management Zones (SMZs).

Coastal Migratory Pelagic Species

HAPCs for Southeast coastal migratory pelagic species include the sandy shoals of Cape Lookout, Cape Fear, and Cape Hatteras from the shore to the ends of the respective shoals; the Point; the Ten-Fathom Ledge; Big Rock; the Charleston Bump; Hurl Rocks; the Point off Jupiter Inlet; Worm reefs off the central east coast of Florida; nearshore hard bottom south of Cape Canaveral; the Hump off Islamorada, FL,; the Marathon Hump off Marathon, FL; The Wall off the Florida Keys; pelagic *Sargassum*; and Atlantic coast estuaries with abundant Spanish mackerel and cobia, including Bogue Sound, New River, and Broad River.

Spiny Lobster

For spiny lobster, the SAFMC has identified the following HAPCs: Florida Bay; Biscayne Bay; Card Sound; and all coral/hard bottom habitat from Jupiter Inlet, FL through the Dry Tortugas, FL.

The HAPCs designated by the SAFMC include a wide and varying range of habitats. Therefore, more detailed descriptions of some of the prominent HAPCs found in the Southeast region are provided below:

Charleston Bump and Gyre

The coastal region southeast of Charleston, South Carolina is known as the Charleston Bump. In this productive area, the depth of the seafloor rises abruptly from 700 to 300 meters within the short distance of about 20 kilometers. In the same area, the cyclonic Charleston Gyre is a permanent oceanographic feature of the South Atlantic Bight induced by the reflection of rapidly moving Gulf Stream waters. The Charleston Gyre is considered essential nursery habitat for some offshore reef fishes. It produces a large area of upwelling nutrients that contributes significantly to primary and secondary production, and is consequently important to some ichthyoplankton.

Ten Fathom Ledge and Big Rock

The Ten Fathom Ledge and Big Rock areas are located south of Cape Lookout, North Carolina. The Ten Fathom Ledge is located at 34^{o} 11' N and 76^{o} 07' W in 95 to 120 meter depth on the Continental Shelf in Onslow Bay, North Carolina. This area encompasses numerous patch reefs of coral-algal-sponge growth on rock outcroppings distributed over 136 square miles of ocean floor. The substrate consists of oolithic calcarenites and coquina forming a thin veneer over the underlying Yorktown formation of silty sands, clays, and calcareous quartz sandstones.

The Big Rock area encompasses 36 square miles of deep drowned reef around the 50 to 100 meter isobath on the outer shelf and upper slope approximately 36 miles south of Cape Lookout. Hard substrates at the Big Rock area are predominately algal limestone and calcareous sandstone.

Unique bottom topography at both sites produces oases of productive bottom relief with diverse and productive epifaunal and algal communities surrounded by a generally monotonous and relatively unproductive sand bottom. Approximately 150 reef-associated species have been documented at the two sites.

Shelf Break Area from North Carolina to Florida

The bottom area between 100 and 300 meters deep from Cape Hatteras to Cape Canaveral constitutes essential deep reef fish habitat. Series of troughs and terraces are composed of bioeroded limestone and carconate sandstone (Newton et al., 1971), and exhibit vertical relief ranging from less than half a meter to more than 10 meters. Ledge systems formed by rock outcrops and piles of irregularly sized boulders are common.

Overall, the deep reef fish community probably consists of fewer than 50 species. Parker and Ross (1986) observed 34 species of deepwater reef fishes (representing 17 families) from submersible operations off North Carolina in waters 98 to 152 meters deep.

Gray's Reef National Marine Sanctuary

Gray's Reef National Marine Sanctuary is located 17.5 nautical miles east of Sapelo Island, Georgia, and 35 nautical miles Northeast of Brunswick, Georgia. Gray's Reef encompasses nearly 32 square kilometers at a depth of about 22 meters (Parker et al., 1994). The Sanctuary contains extensive but patchy hardbottoms of moderate relief (up to two meters). Rock outcrops, in the form of ledges, are often separated by wide expanses of sand, and are subject to weathering, shifting sediments, and slumping, which create a complex habitat including caves, burrows, troughs, and overhangs (Hunt, 1974). Parker et al. (1994) described the habitat preference of 66 species of reef fish distributed over five different habitat types. Numbers of species and fish densities were highest on the ledge habitat, intermediate on live bottom, and lowest over sand.

Nearshore Hard Bottom of Southeast Florida

The nearshore hard bottom areas extending semi-continuously from Cape Canaveral, FL ($28^{o}30'$ N) to at least Boca Raton, FL (26^{o} 20' N) also meet the HAPC criteria. In terms of ecological function, several studies suggest that nearshore hard bottom reefs may serve as nursery habitat. Many species utilize these habitats during both newly settled and older juvenile life stages, suggesting that nearshore hard bottom can facilitate both inshore and offshore migrations during differing ontogenetic stages of some species. In southeast Florida waters, natural hard bottom areas with substantial three-dimensional structure are lacking. Absence of nursery structure can result in increased predation and lowered growth.

Corals and Coral Reefs

Coral is a living substrate that has been defined as a type of HAPC. Coral is a common name for a number of diverse invertebrate species within the phylum Coelenterata. The Alcyonarian soft corals are of interest because they can provide additional structure for habitat and have a potentially long life span. Soft corals can be bush or treelike in shape. Species found in this form attach to hard substrates such as rock outcrops or gravel. These species can range in size from a few millimeters to several meters, and the trunk diameter of large specimens can exceed 10 centimeters. Other Alcyonarians found in this region include sea pens and sea pansies (Order Pennatulacea), which are found in a wider range of substrate types. In their survey of Northeastern U.S. shelf macrobenthic invertebrates, Theroux and Wigley (1998) found Alcyonarians (including soft corals *Alcyonium sp*., *Acanella sp*., *Paragorgia arborea*, *Primnoa reseda* and sea pens) in limited numbers in waters deeper than 50 meters, and mostly at depths from 200 to 500 meters. Alcyonarians were present in each of the geographic areas identified in the study (Nova Scotia, Gulf of Maine, Southern New England Shelf, Georges Slope, Southern New England Slope) except Georges Bank. However, *Paragorgia* and *Primnoa* have been reported in the Northeast Peak region of Georges Bank (Theroux and Grosslein, 1987). Alcyonarians were most abundant by weight in the Gulf of Maine, and by number on the Southern New England Slope (Theroux and Wigley, 1998). Theroux and Wigley (1998) also found stony corals (*Astrangia danae* and *Flabellum sp*.) in the Northeast region, but they were uncommon. In similar work on the Mid-Atlantic shelf, the only Alcyonarians encountered were

sea pens (Wigley and Theroux, 1981). The stony coral *Astrangia danae* was also found, but its distribution and abundance were not discussed, and are assumed to be minimal.

Gorgonian corals are upright, hard coral species. They are colonies of animals composed of individual polyps, which deposit a tree or fanlike skeleton that supports the colony. In the Atlantic EEZ, gorgonian corals, particularly members of the genera *Paragoria* and *Primnoa* (red tree coral), may be especially valuable as fish habitat due to their longevity and large size (they can grow up to three meters high and seven meters wide). Some species of gorgonians may live to be over 100 years old (Risk et al., 2001; Andrews et al., 2002). Large *Primnoa* colonies may be hundreds of years old; a recent study using isotope dating concluded that a five-centimeter specimen of *Primnoa reseda* from Nova Scotia, Canada, was approximately 500 years old (Risk et al., 1998). The habitat created by these gorgonians may be occupied by communities with high biodiversity and may provide shelter for fish (Risk et al., 1998; Fossa et al., 1999). Given their size and longevity, gorgonian corals may be especially vulnerable to fishing impacts and may take over 100 years to recover (Andrews et al., 2002). Although scientists have limited understanding of its importance as fish habitat, deep water coral clearly provides vertical structure for fish to use for protection and cover.

4.4.3 American Lobster Habitats

The American lobster fishery accounts for the majority of affected vessels and gear regulated by the ALWTRP. Because lobster habitat may be influenced by the proposed ALWTRP modifications, this section examines the unique aspects of lobster habitat in greater detail.

The American lobster (*Homarus americanus*) is distributed throughout the Northwest Atlantic Ocean from Newfoundland to Cape Hatteras, North Carolina. Juvenile and adult American lobsters occupy a wide variety of benthic habitats from the intertidal zone to depths of 700 meters. They are most abundant in relatively shallow coastal waters.

The following description of lobster habitats in the Northeast region of the U.S. (Maine to North Carolina) is based primarily on a report prepared by Lincoln (1998) from a variety of primary source documents. This information has been supplemented by the addition of some more recent research results. Exhibit 4-39 summarizes information on lobster densities by habitat type.

4.4.3.1 Inshore Lobster Habitats

Estuaries represent one key component of inshore lobster habitat, and encompass the following environments:

- **Mud Base with Burrows**: These habitats occur primarily in harbors and quiet estuaries with low currents. Lobster shelters are formed from excavations in soft substrate. This is an important habitat for juveniles and densities can be very high, reaching 20 animals per square meter.

- **Rock, Cobble and Gravel**: Juveniles and adolescents have been reported on shallow bottom with gravel and gravely sand substrates in the Great Bay Estuary, NH; on gravel/cobble substrates in outer Penobscot Bay, ME (Steneck and Wilson, 1998); and in rocky habitats in Narragansett Bay, RI (Lawton and Lavalli, 1985). Densities in Penobscot Bay exceeded 0.5 juveniles and 0.75 adolescents/m^2. According to unpublished information cited by Lincoln (1998), juvenile lobsters in Great Bay prefer shallow bottoms with gravely sand substrates.

- **Rock/Shell**: Adult lobsters in the Great Bay Estuary utilize sand and gravel habitats in the channels, but appear to prefer a rock/shell habitat more characteristic of the high temperature, low salinity regimes of the central bay.

Exhibit 4-39

SUMMARY OF AMERICAN LOBSTER HABITATS AND DENSITIES

Habitat Category	Habitat Subtypes	Lobster Densities (number/ square meter)	Lobster Sizes	Source
Estuaries	Mud base with burrows	Up to 20	Small juveniles	Cooper and Uzmann, 1980
		< 0.01	Adults	Cooper and Uzmann, 1980
	Rock, cobble & gravel	> 0.5	Juveniles	Steneck and Wilson, 1998
		> 0.75	Adolescents	Steneck and Wilson, 1998
	Rock/shell	N.A.		
Inshore Rock Types	Sand base with rock	3.2	Avg. 40 mm carapace length	Cooper and Uzmann, 1980
	Boulders overlaying sand	0.09-0.13		Cooper and Uzmann, 1980
	Cobbles	Up to 16		Cooper and Uzmann, 1980
	Bedrock base with rock and boulder overlay	0.1-0.3		Cooper and Uzmann, 1980
	Mud-shell/rock substrate	0.15		Cooper and Uzmann, 1980
Submarine Canyons	Canyon rim and walls	0-0.0002	Adolescents and adults	Cooper et al., 1987
	Canyon walls	Up to 0.001	Adolescents and adults	Cooper et al., 1987
	Rim and head of canyons and at base of walls	0.0005-0.126	Adolescents and adults	Cooper et al., 1987
	Pueblo villages	0.0005-0.126	Adolescents and adults	Cooper et al., 1987
Other	Peat	Up to 5.7		Barshaw and Lavalli, 1988
	Kelp beds	1.2-1.68	Adolescents	Bologna and Steneck, 1993
	Eel grass	<0.04	Juveniles and adolescents	Barshaw and Lavalli, 1988
		0.1	80% adolescents	Short et al., 2001
	Sand base with rock	N.A.		
	Clay base with burrows and depressions	Minimum 0.001		Cooper and Uzmann, 1980
	Mud-clay base with anemones	Minimum 0.001	50-80 mm carapace length in depressions	Cooper and Uzmann, 1980

Inshore rock areas make up another important category of lobster habitat. These include the following:

- **Sand Base with Rock**: This is the most common inshore rock type in depths greater than 40 meters. It consists of sandy substrate overlain by flattened rocks, cobbles, and boulders. Lobsters are associated with abundant sponges, Jonah crabs, and rock crabs. Shelters are formed by excavating sand under a rock to form U-shaped, shallow tunnels. Densities of sub-adult lobsters are fairly high in these areas.

- **Boulders Overlaying Sand**: This habitat type is relatively rare in inshore New England waters. Compared to other inshore rocky habitats, lobster densities are low.

- **Cobbles**: Lobsters occupy shelters of varying size in the spaces between rocks, pebbles, and boulders. Densities as high as 16 lobsters/m^2 have been observed, making this the most densely populated inshore rock habitat for lobsters in New England.

- **Bedrock Base with Rock and Boulder Overlay**: This rock type is relatively common inshore, from low tide to depths of 15 to 45 meters. Shelters are formed by rock overhangs or crevices. Encrusting coralline algae and attached organisms such as anemones, sponges, and mollusks cover exposed surfaces. Green sea urchins and starfish are common. Cunner, tautog, sculpin, sea raven, and redfish are the most abundant fish. Lobster densities generally are low.

- **Mud-Shell/Rock Substrate**: This habitat type is usually found where sediment discharge is low and shells make up the majority of the bottom. It is best described off the Rhode Island coast. Lobster densities generally are low.

Other lobster habitat types are significant. For example, kelp beds represent another form of lobster habitat. Kelp beds in New England consist primarily of *Laminaria longicruris* and *L. saccharina*. Lobsters were attracted to transplanted kelp beds at a nearshore study site in the mid-coast region of Maine, reaching densities almost ten times higher than in nearby control areas (Bologna and Steneck, 1993). Lobsters did not burrow into the sediment, but sought shelter beneath the kelp. Only large kelp (greater than 50 cm in length) was observed sheltering lobsters and was used in the transplant experiments.

Lobster shelters also are formed from excavations cut into peat. Reefs form from blocks of salt marsh peat that break and fall into adjacent marsh creeks and channels and appear to provide moderate protection for small lobsters from predators (Barshaw and Lavalli, 1988). Densities are high (up to 5.7/m^2) in these areas.

Lobsters have been associated with eelgrass beds in the lower portion of the Great Bay Estuary in New Hampshire (Short et al., 2001). Eighty percent of the lobsters collected from

eelgrass beds were adolescents. Average density was 0.1/m^2, higher than reported by Barshaw and Lavalli (1988). In mesocosm experiments, Short et al. reported that lobsters showed a clear preference for eelgrass over bare mud. This research showed that adolescent lobsters burrow in eelgrass beds, utilize eelgrass as an overwintering habitat, and prefer eelgrass to bare mud.

Finally, research in Maine has demonstrated the presence of early settlement, postlarval, and juvenile lobsters in the lower intertidal zone (Cowan, 1999). Two distinct size classes were consistently present: three to 15 mm and 16 to 40 mm. Monthly mean densities during a five-year period ranged from zero to 8.6 individuals/m^2 at 0.4 meters below mean low water. Preliminary results indicate that areas of the lower intertidal zone serve as nursery grounds for juvenile lobster.

4.4.3.2 Offshore Lobster Habitats

Offshore areas supply several types of lobster habitat. First, more than 15 submarine canyons cut into the shelf edge on the south side of Georges Bank. These canyons were first surveyed in the 1930s, but were not fully explored until manned submersibles were used extensively in the 1980s. Detailed information on canyon habitats for American lobster are available primarily for Oceanographer Canyon, but this information is generally applicable to other major canyons on Georges Bank. Concentrations of adolescents and adult lobsters are substantially greater in submarine canyons than in nearby areas that are occupied mostly by adults (Cooper et al., 1987; Cooper and Uzmann, 1980). These canyons present a diverse group of habitat types:

- **Canyon Rim and Walls**: Sediments consist of sand or semi-consolidated silt with less than five percent overlay of gravel. The bottom is relatively featureless. Burrowing mud anemones are common but lobster densities are low.

- **Canyon Walls**: Sediments consist of gravely sand, sand, or semi-consolidated silt with more than five percent gravel. The bottom is relatively featureless. Burrowing mud anemones are common, as are Jonah crabs, ocean pout, starfish, rosefish, and squirrel hake. Lobster densities are somewhat higher than in substrates that contain less gravel (see above).

- **Rim and Head of Canyons at Base of Walls**: Sand or semi-consolidated silt substrate is overlain by siltstone outcrops and talus up to boulder size. The bottom is very rough and is eroded by animals and current scouring. Lobsters are associated with rock anemones, Jonah crabs, ocean pout, tilefish, starfish, conger eels, and white hake. Densities are highly variable, but reach as high as 0.13 lobsters/m^2.

- **Pueblo Villages**: This habitat type exists in the clay canyon walls and extends from the heads of canyons to middle canyon walls. It is heavily burrowed and excavated. Slopes range from five to 70 degrees, but are

generally between 20 and 50 degrees. Juvenile and adult lobsters and associated fauna create borings up to 1.5 meters in width, one meter in height, and two meters or more in depth. Lobsters are associated with Jonah crabs, tilefish, hermit crabs, ocean pout, starfish, and conger eels. This habitat may well contain the highest densities of lobsters found offshore.

In addition to canyons, lobster are associated with several other offshore habitat types, including the following:

- **Sand Base with Rocks**: Although common inshore (see above), this habitat is rather restricted in the offshore region except along the north flank of Georges Bank.

- **Clay Base with Burrows and Depressions**: This habitat is common on the outer continental shelf and slope. Lobsters excavate burrows up to 1.5 meters long. There are also large, bowl-like depressions that range in size from one to five meters in diameter and may shelter several lobsters at a time. Minimum densities of 0.001 lobsters/m^2 have been observed in summer.

- **Mud-Clay Base with Anemones**: This is a common habitat for lobsters on the outer shelf or upper slope. Forests of mud anemones (*Cerianthus borealis*) may reach densities of three or four per square meter. Depressions serve as shelter for relatively small lobsters at minimum densities of 0.001/m^2.

- **Mud Base with Burrows**: This habitat occurs offshore mainly in the deep basins, in depths up to 250 meters. This environment is extremely common offshore. Lobsters occupy this habitat, but no density estimates are available.

4.4.4 Impact of Fishing on EFH

The environmental impact analysis presented later in this EIS includes a discussion of how the ALWTRP may affect fishing gear and fishing practices, and subsequently influence marine habitat. Experts believe that fixed fishing gear (pots/traps and anchored gillnets) has a more direct impact on benthic habitat than on non-benthic (water column) habitat because it generally comes in contact with the sea floor. Therefore, the sections below review how fixed-gear fishing can affect habitat, with a primary focus on benthic habitat. The potential effects examined include:

- Alteration of physical structure;
- Mortality of benthic organisms;
- Changes to the benthic community and ecosystem;

- Sediment suspension; and
- Chemical modifications.

4.4.4.1 Alteration of Physical Structure

Any type of fishing gear that is towed, dragged, or dropped on the seabed will disturb the sediment and the resident community to varying degrees. The intensity of disturbance is dependent on the type of gear, how long the gear is in contact with the bottom, sediment type, sensitivity of habitat features in contact with the gear, and frequency of disturbance. Physical effects of fishing gear, such as ploughing, smoothing of sand ripples, removal of stones, and turning of boulders, can act to reduce the heterogeneity of the sediment surface. For example, boulder piles, crevices, and sand ripples can provide fish and invertebrates hiding areas and a respite from currents and tides. Removal of taxa, such as worm tubes, corals, and gorgonians that provide relief, and the removal or shredding of submerged vegetation, can also occur, thereby reducing the number of structures available to biota as habitat.

Most studies on habitat damage due to fishing gear focus on the effects of bottom trawls and dredges. It has been noted by Rogers et al. (1998) that the reason there are few accounts of static gear (e.g. traps/pots) having measurable effects on benthic biota may be because the area of seabed affected by such gear is almost insignificant when compared to the widespread effects of mobile gear. Although there has been relatively little research conducted to document the impacts to physical structure from trap/pot gear, it is possible that benthic structures (both living and non-living) could be affected as traps/pots are dropped or dragged along the bottom. For example, Eno et al. (2001) observed and evaluated the effects of crab and lobster pots/traps on attached epibenthic megafauna (sponges, bryozoans, ascidians, soft corals, and tube worms) at three locations in Great Britain, and conducted three experiments to assess sea pen recovery and survival following dragging, uprooting, and smothering by lobster pots/traps. Sea pens underneath traps/pots were bent over and some were even uprooted when traps/pots were dragged over mud sediments, but they fully recovered within 72 to 144 hours after pots/traps were removed. When traps/pots were dragged over the bottom, they left tracks, but four weeks of simulated commercial trap/pot fishing had no negative effects on the abundance of attached benthic epifauna. In fact, sponges increased in abundance in the experimental plots. Therefore, the study concluded that the use of pots/traps had no lasting effects on the three different habitat types observed.

Chuenpagdee et al. (2003) compared the effects of different gear types on benthic habitat and also found the physical habitat impacts of traps/pots and bottom gill nets to be moderate. The biological habitat impacts of these gears were found to be low. Habitat impacts caused by bottom trawls and dredges were considered to be much higher. A similar conclusion was reached by a panel of experts that evaluated the habitat impacts of commercial fishing gears used in the Northeast region of the U.S. (Maine to North Carolina). Bottom-tending static gear (e.g. traps/pots) was found to have a minimal effect on benthic habitats when compared to the physical and biological impacts caused by bottom trawls and dredges (NMFS 2002f). Furthermore, the vulnerability of benthic EFH for all managed species in the region to the impacts of pots/traps and bottom gill nets is considered to be low (NMFS 2004c).

4.4.4.2 Mortality of Benthic Organisms

In addition to effects on physical habitat, fishing gear can cause direct mortality to emergent epifauna. In particular, erect, foliose fauna or fauna that build reef-like structures have the potential to be destroyed by towed gear, longlines, or traps/pots (Hall, 1999). Physical structure of the biota sometimes determines their ability to withstand and recover from the physical impacts of fishing gear. For example, thinner shelled bi-valves and seastars often suffer higher damage than solid shelled bi-valves (Rumohr and Krost, 1991). Animals that can retract below the penetration depth of the fishing gear and those that are more elastic and can bend upon contact with the gear also fare much better than those that are hard and inflexible (Eno et al., 2001).

4.4.4.3 Changes to Benthic Communities and Ecosystems

The mortality of benthic organisms as a result of interaction with fishing gear can alter the structure of the benthic community, potentially causing a shift in the community from low-productive long-lived species (k-selected species) to highly-productive, short-lived, rapidly-colonizing species (r-selected species). For example, motile species that exhibit high fecundity and rapid generation times will recover more quickly from fishery-induced disturbances than non-mobile, slow-growing organisms, which may lead to a community shift in chronically fished areas (Levin, 1984).

Increased fishing pressure in a certain area may also lead to changes in species distribution. Changes (e.g., localized depletion) could be evident in benthic, demersal, and even pelagic species. Scientists have also speculated that mobile fishing may lead to increased populations of opportunistic feeders in chronically fished areas.

4.4.4.4 Sediment Suspension

Resuspension of sediment can occur as fishing gear is pulled or dragged along or immediately above the seafloor (NMFS, 2002c). Although resuspension of sediment is typically associated with mobile fishing gear, it also can occur with gear such as traps/pots.

Chronic suspension of sediments and resulting turbidity can affect aquatic habitat by reducing available light for photosynthesis, burying benthic biota, smothering spawning areas, and causing negative effects on feeding and metabolic rates. If it occurs over large areas, resuspension can redistribute sediments, which has implications for nutrient budgets (Messieh et al., 1991; Black and Parry, 1994; Mayer et al., 1991; and Pilskaln et al., 1998).

Species' reaction to turbidity depends on the particular life history characteristics of the organism. Effects are likely to be more significant in waters that are normally clear as compared to areas that typically experience high naturally induced turbidity (Kaiser, 2000). Mobile organisms can move out of the affected area and quickly return once the turbidity dissipates (Coen, 1995). Even if species experience high mortality within the affected area, those with high levels of recruitment or high mobility can re-populate the affected area rapidly. However, sessile

or slow-moving species would likely be buried and could experience high mortality. Furthermore, if effects are protracted and occur over a large area, recovery through recruitment or immigration will be hampered. Additionally, chronic resuspension of sediments may lead to shifts in species composition by favoring those species that are better suited to recover or those that can take advantage of the additional nutrient supply as the nutrients are released from the seafloor to the euphotic zone (Churchill, 1989).

4.4.4.5 Chemical Modifications

Disturbances associated with fishing gear also can cause changes in the chemical composition of the water column overlying affected sediments. In shallow water, the impacts may not be noticeable relative to the mixing effects caused by tidal surges, storm surges, and wave action. However, in deeper, calmer areas with more stable waters, the changes in chemistry may be more evident (NMFS, 2002c). Increases in ammonia content, decreases in oxygen, and pulses of phosphate have been observed in North Sea waters, although it is not clear how these changes affect fish populations. Increased incidence of phytoplankton blooms could occur during seasons when nutrients are typically low. The increase in primary productivity could have a positive effect on zooplankton communities and on organisms up the food chain.

Eutrophication, often considered a negative effect, could also occur. However, it is important to note that these releases of nutrients to the water act to recycle existing nutrients and, thereby, make them available to benthic organisms rather than add new nutrients to the system (ICES, 1992). This recycling is thought to be less influential in the eutrophication process than the input of new nutrients from rivers and land runoff.

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Appendix 4-A

SPECIES LANDED WITH TRAP/POT GEAR IN 2011

Exhibit 4A-1

TOTAL LANDINGS CAUGHT WITH TRAP/POT GEAR IN 2011

Region	Species	Pounds Landed[2]
Northeast (ME to VA)	LOBSTER	123,536,609
	CRAB, BLUE	73,199,765
	CRAB, JONAH	8,996,326
	CRAB, RED	3,597,848
	CRAB, ROCK	1,975,715
	SHRIMP (PANDALID)	1,866,334
	WHELK, CHANNELED	1,488,493
	CATFISH,CHANNEL	1,466,015
	HAGFISH	1,350,801
	EEL, AMERICAN	1,078,906
	CATFISH, BLUE	959,821
	SCUP	778,951
	CONCHS	689,760
	CATFISH(SEA)	454,168
	SEA BASS, BLACK	444,825
	DOGFISH SPINY	317,030
	WHELK, KNOBBED	285,314
	CRAB, NK	221,333
	SPOT	201,295
	TURTLE, SNAPPER	137,235
	OTHER FISH	112,798
	HERRING, ATLANTIC	106,323
	CRAB, GREEN	106,120
	WHELK, WAVED	97,532
	CATFISH (FRESHWATER)	85,979
	PERCH, WHITE	60,911
	TAUTOG	57,787
	CROAKER, ATLANTIC	55,159
	TOADFISH, OYSTER	49,156
	FLOUNDER, SUMMER	28,207
	MINNOW	25,136
	PUFFER, NORTHERN	24,679
	CRAB, HORSESHOE	23,563
	MENHADEN	22,416
	BULLHEADS	21,156
	EEL, CONGER	20,037
	BASS, STRIPED	19,337
	CATFISH,FLATHEAD	16,201
	HAKE, RED	16,136
	COD	13,991
	PERCH, YELLOW	12,953
	HAKE, SILVER	12,592
	BLUEFISH	9,194
	SCALLOP, SEA	9,102
	GIZZARD SHAD	9,052
	ANGLER	8,770

Exhibit 4A-1

TOTAL LANDINGS CAUGHT WITH TRAP/POT GEAR IN 2011

Region	Species	Pounds Landed[2]
	POLLOCK	7,604
	CUNNER	6,717
	SEA RAVEN	5,224
	SKATE, WINTER(BIG)	4,445
	TRIGGERFISH	3,756
	CARP	2,594
	FLOUNDER, WINTER	2,244
	BUTTERFISH	2,048
	HAKE, WHITE	1,904
	HARVEST FISH	1,744
	QUAHOG	1,397
	SQUID (LOLIGO)	1,330
	WHITING, KING	777
	POUT, OCEAN	764
	MACKEREL, SPANISH	707
	CLAM, SOFT	649
	MACKEREL, ATLANTIC	487
	OYSTERS	447
	ALEWIFE	437
	SHAD, AMERICAN	392
	FLOUNDER, SOUTHERN	391
	CRAB, SPIDER	374
	PERIWINKLES	346
	OTHER SHELLFISH	325
	SHRIMP,BROWN	324
	MOLLUSKS NK	270
	FLOUNDER, YELLOWTAIL	261
	TURTLE, TERRAPIN	237
	DOLPHINFISH	203
	FLOUNDER, WITCH	185
	SHARK, MAKO SHORTFIN	183
	SWORDFISH	168
	DOGFISH SMOOTH	159
	WEAKFISH, SQUETEAGUE	159
	STRIPED MULLET	156
	SCALLOP, BAY	147
	PUFFER	145
	HAKE, OFFSHORE	118
	COBIA	112
	TILEFISH, BLUELINE	99
	HALIBUT, ATLANTIC	88
	CRAPPIE	82
	WEAKFISH, SPOTTED	77
	SUNFISHES	74
	TILEFISH (NK)	74
	OTHER FISH	54
	REDFISH	53
	HADDOCK	49
	TARPON	40

Exhibit 4A-1

TOTAL LANDINGS CAUGHT WITH TRAP/POT GEAR IN 2011

Region	Species	Pounds Landed[2]
	BARRELFISH	39
	GARFISH	31
	BONITO	30
	OCTOPUS	30
	GROUPER	25
	SCULPINS	25
	PORGY, RED	24
	DRUM, BLACK	22
	SHEEPSHEAD	22
	SKATES	21
	WRECKFISH	20
	BLUE RUNNER	20
	FLOUNDER, AM. PLAICE	19
	SHAD, HICKORY	18
	CUSK	17
	NEEDLEFISH, ATLANTIC	14
	MUMMICHOG	14
	MUSSELS	14
	SPADEFISH	13
	TUNA, BLACKFIN	11
	MULLETS	10
	FLOUNDER, SAND-DAB	9
	PIGFISH	8
	CUTLASSFISH,ATLANTIC	7
	POMPANO, COMMON	3
	TILEFISH, SAND	3
	CRAB, HERMIT	3
	DRUM, RED	2
	TILEFISH, GOLDEN	2
	SEA ROBINS	1
Southeast (NC to FL)	LOBSTER, SPINY	2,758,000
	CRAB, GOLDEN	613,00
	CRAB,STONE (UNC CLAWS)	597,000
	SEA BASS, ATLANTIC,BLACK,UNC	318,000
	TRIGGERFISHES	8,000
	SNAPPER,MUTTON	7,000
	GRUNTS	6,000
	PORGY,JOLTHEAD	3,000
	GROUPER, BLACK	1,000
	HOGFISH	1,000
	BANDED RUDDERFISH	<1,000
	BLUE RUNNER	<1,000
	COBIA	<1,000
	CREVALLE	<1,000
	DOLPHINFISH	<1,000
	DRUM,RED	<1,000
	GROUPER,GAG	<1,000
	GROUPER,RED	<1,000
	GRUNT,TOMTATE	<1,000

Exhibit 4A-1

TOTAL LANDINGS CAUGHT WITH TRAP/POT GEAR IN 2011

Region	Species	Pounds Landed[2]
	GRUNT,WHITE	<1,000
	HIND,RED	<1,000
	HIND,ROCK	<1,000
	LOBSTER,SLIPPER(BULLDOZER)	<1,000
	MACKREL,KING AND CERO	<1,000
	MARGATE	<1,000
	PORGY,KNOBBED	<1,000
	PORGY, RED,UNC	<1,000
	SCAMP	<1,000
	SCUPS ORPORGIES,UNC	<1,000
	SEA BASS,BANK	<1,000
	SEA BASS,ROCK	<1,000
	SHEEPSHEAD, ATLANTIC	<1,000
	SNAPPER, GRAY AT (MANGROVE)	<1,000
	SNAPPER, LANE	<1,000
	SNAPPER,RED	<1,000
	SNAPPER, VERMILION	<1,000
	SNAPPER, YELLOWTAIL	<1,000
	TILEFISH,BLUELINE	<1,000

Sources:
NMFS, 2002d.
NMFS, 2002e.
SEFSC Commercial ACL Dataset (Jul 2012)

Notes:
[1] Potentially affected gillnet fisheries include Atlantic croaker, spot, striped bass, bluefish, skate, and weakfish. Catch of these species by ALWTRP affected gear types is relatively small; therefore, NMFS did not include an Exhibit to demonstrate total landings caught with gillnet gear in 2011.
[2]The landings figures represent total pounds landed with trap/pot gear and include landings from coastal waters that are exempt from ALWTRP regulations. Southeast landings do not include landings by state-permitted-only vessels. Southeast landings are rounded to the nearest 1,000 pounds to preserve confidentiality.

Appendix 4-B

NORTHEAST MULTISPECIES FISHERY COMPLEX: SPECIES INFORMATION

Exhibit 4B-1

NAME, DISTRIBUTION, BIOLOGY AND COMMERCIAL USES OF SPECIES COMPRISING THE NORTHEAST MULTISPECIES FISHERY COMPLEX

Photo ID	Common Name	Scientific Name	Distribution In Western Atlantic	Biology	Maximum Weight; Age	Commercial Uses
1	American plaice	*Hippoglossoides platessoides*	Southern Labrador in Canada and western Greenland to Rhode Island in U.S.	Lives on soft bottoms. Feeds on invertebrates and small fishes.	6.4 kg; 30 years	Marketed fresh and frozen.
2	Atlantic cod	*Gadus morhua*	Ungava Bay to Cape Hatteras along the North American coast.	Oceanic, this species is widely distributed in a variety of habitats from the shoreline to well down the continental shelf. Omnivorous, the cod feeds at dawn or dusk on invertebrates and fish, including young cod. Forms schools during the day. Spawns once a year.	96 kg; 25 years	Marketed fresh, dried/salted, smoked and frozen.

Exhibit 4B-1

NAME, DISTRIBUTION, BIOLOGY AND COMMERCIAL USES OF SPECIES COMPRISING THE NORTHEAST MULTISPECIES FISHERY COMPLEX

Photo ID	Common Name	Scientific Name	Distribution In Western Atlantic	Biology	Maximum Weight; Age	Commercial Uses
3	Atlantic halibut	*Hippoglossus hippoglossus*	Southwestern Greenland and Labrador in Canada to Virginia in the U.S.	Benthic but occasionally caught pelagically. Feeds mainly on other fishes (cod, haddock, pogge, sand-eels, herring, capelin), but also takes cephalopods, large crustaceans and other bottom-living animals. Growth rate varies according to density, competition and availability of food. Slow growth rate and late onset of sexual maturity.	320 kg; 50 years	Utilized fresh/dried/salted, smoked and frozen.
4	Haddock	*Melanogrammus aeglefinus*	From Strait of Belle Isle to Cape May, New Jersey.	Feeds mainly on small bottom-living organisms including crustaceans, mollusks, echinoderms, worms and fishes.	16.8 kg; 20 years	Sold fresh, chilled as fillets, frozen, smoked and canned. Also utilized for fish meal and animal feeds.
5	Ocean pout	*Macrozoarces americanus*	Labrador in Canada to Delaware in U.S. (rarely to Virginia; doubtfully to North Carolina).	Occurs from intertidal zone to more than 180 m depth.	5.4 kg; NA	NA

Exhibit 4B-1

NAME, DISTRIBUTION, BIOLOGY AND COMMERCIAL USES OF SPECIES COMPRISING THE NORTHEAST MULTISPECIES FISHERY COMPLEX

Photo ID	Common Name	Scientific Name	Distribution In Western Atlantic	Biology	Maximum Weight; Age	Commercial Uses
6	Offshore hake	*Merluccius albidus*	Georges Bank, New England to Surinam and French Guiana.	An offshore species that inhabits the outer part of the continental shelf and upper part of the slope. Feeds at night, when it comes up towards the surface. Food consists primarily of fishes (particularly lantern fishes, sardines and anchovies) and, to a lesser extent, crustaceans and squid.	4.1 kg; NA	Marketed fresh, frozen, and smoked.

Exhibit 4B-1

NAME, DISTRIBUTION, BIOLOGY AND COMMERCIAL USES OF SPECIES COMPRISING THE NORTHEAST MULTISPECIES FISHERY COMPLEX

Photo ID	Common Name	Scientific Name	Distribution In Western Atlantic	Biology	Maximum Weight; Age	Commercial Uses
7	Pollock	*Pollachius virens*	Southern Nova Scotia, straying to the Gulf of St. Lawrence, to North Carolina.	An active, gregarious fish occurring in inshore and offshore waters. Usually enters coastal waters in spring and returns to deeper waters in winter. Smaller fish in inshore waters feed on small crustaceans (copepods, amphipods, euphausiids) and small fish, while larger fish prey predominantly upon fishes. Migrations for spawning are known to occur. Also long-distance north-south migrations for Europe and the U.S.	32 kg; 25 years	Utilized fresh, dried/salted, smoked, canned and frozen.

Exhibit 4B-1

NAME, DISTRIBUTION, BIOLOGY AND COMMERCIAL USES OF SPECIES COMPRISING THE NORTHEAST MULTISPECIES FISHERY COMPLEX

Photo ID	Common Name	Scientific Name	Distribution In Western Atlantic	Biology	Maximum Weight; Age	Commercial Uses
8	Red hake	*Urophycis chuss*	From North Carolina to southern Nova Scotia, straying to the Gulf of St. Lawrence.	Found on soft muddy and sandy bottoms, but never on rocks, gravel or shells. Juveniles live along the coasts at shallow depths (4-6 m); adults migrate to deeper waters, generally to between 110 and 130 m, and in some instances to over 550 m. Juveniles live in scallops (*Placopecten magellanicus*) and remain close to scallop beds until they mature. Feed on shrimp, amphipods and other crustaceans, also on squid and herring, flatfish, mackerel and others.	3.6 kg; NA	Utilized fresh, dried/salted and frozen; small fish are also used for fishmeal.
9	Redfish	*Sebastes faciatus*	Iceland to New Jersey.	Inhabits deep water. Bears live young. Gregarious throughout life. Feeds on euphausiids, decapods, mysids, small mollusks and fishes. Ovoviviparous.	NA; NA	NA

Exhibit 4B-1

NAME, DISTRIBUTION, BIOLOGY AND COMMERCIAL USES OF SPECIES COMPRISING THE NORTHEAST MULTISPECIES FISHERY COMPLEX

Photo ID	Common Name	Scientific Name	Distribution In Western Atlantic	Biology	Maximum Weight; Age	Commercial Uses
10	White hake	*Urophycis tenuis*	Labrador and the Grand Banks of Newfoundland to the coast of North Carolina. Straying to Iceland in the east and Florida in the south.	Found on soft, muddy bottoms of the continental shelf and upper slope. It is mostly found at 180 m. Mature fish migrate inshore in the northern Gulf of Maine in summer, disperse in autumn, and move into deepest areas in winter. Feeds on small crustaceans, squid and small fish.	21 kg; 10 years	Utilized fresh, smoked or frozen.
11	Silver hake (whiting)	*Merluccius bilinearis*	Coast of Canada and U.S. from Belle Isle Channel to the Bahamas; most common from southern Newfoundland to South Carolina.	Abundant on sandy grounds and strays into shallower waters. A voracious predator with cannibalistic habits. Individuals over 40 cm TL prey on fishes such as gadoids and herring, while smaller ones feed on crustaceans, i.e. euphausiids and pandalids. Exhibits seasonal onshore-offshore migration.	2.3 kg; 12 years	Marketed fresh, smoked and frozen; fresh fish are exported to European markets.

Exhibit 4B-1

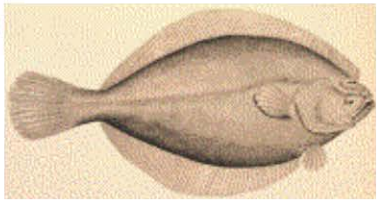
NAME, DISTRIBUTION, BIOLOGY AND COMMERCIAL USES OF SPECIES COMPRISING THE NORTHEAST MULTISPECIES FISHERY COMPLEX

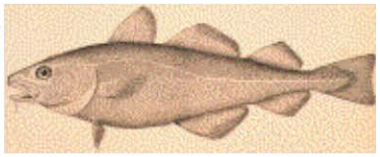
Photo ID	Common Name	Scientific Name	Distribution In Western Atlantic	Biology	Maximum Weight; Age	Commercial Uses
12	Windowpane flounder	*Scophthalmus aquosus*	Gulf of St. Lawrence in Canada to northern Florida in U.S.	Occurs from shore to 45 m depth, occasionally in deeper water.	NA; NA	NA
13	Winter flounder	*Pseudopleuronectes americanus*	Labrador in Canada to Georgia in U.S.	Feed predominantly in daytime on organisms living in, on or near the bottom: shrimp, amphipods, crabs, sea urchins and snails.	3.6 kg; NA	Marketed fresh or frozen.
14	Witch flounder	*Glyptocephalus cynoglossus*	Gulf of St. Lawrence and Grand Banks in Canada to North Carolina in U.S.	Inhabits soft mud bottoms in fairly deep water. Feeds on crustaceans, polychaetes and brittle stars.	2.5 kg; 25 years	Marketed fresh or frozen.
15	Yellowtail flounder	*Pleuronectes ferruginea*	Southern Labrador in Canada to Chesapeake Bay in U.S.	Inhabits sandy to muddy bottoms. Prefers depths of 37 to 82 m at temperatures of 3-5°C. Feeds mainly on polychaete worms and amphipods, shrimp, isopods and other crustaceans, and occasionally on small fish such as sand lance and capelin.	1.5 kg; 12 years	Marketed fresh or frozen.

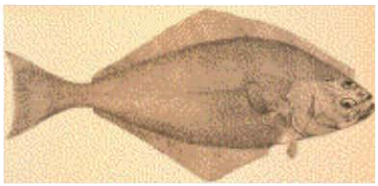
Sources: NMFS, 2004b. List of species taken from NEFMC, 2003c. Species information taken from Froese, R. and D. Pauly (eds.), 2003, and Collette and MacPhee, 2002.

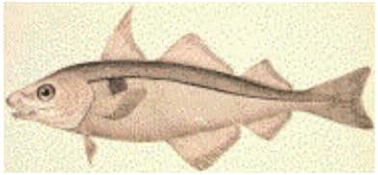
Exhibit 4B-2

IMAGES, NORTHEAST MULTISPECIES FISHERY COMPLEX

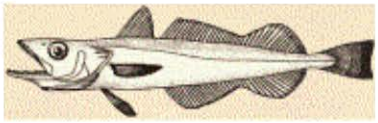
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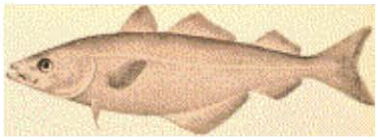
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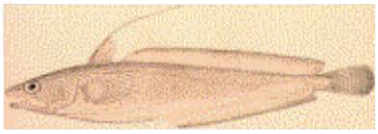
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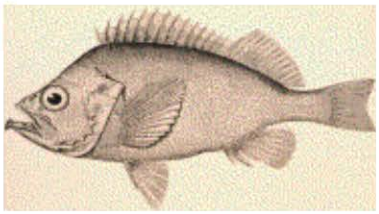
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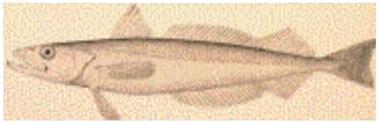

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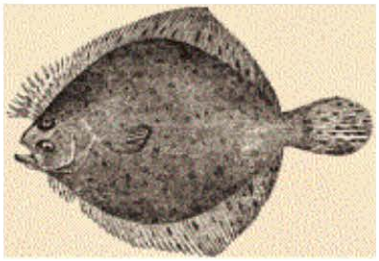
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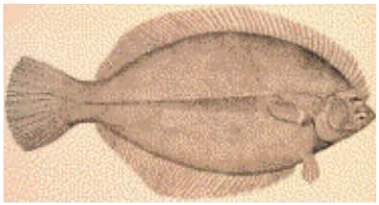
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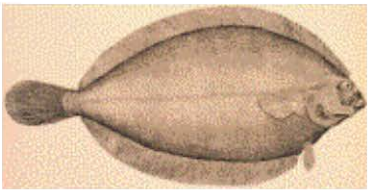
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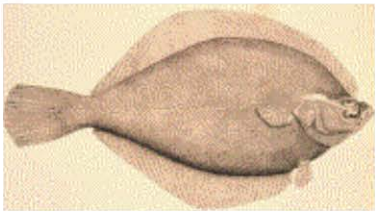
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Source: NEFMC, 2003c.

BIOLOGICAL IMPACTS CHAPTER 5

The National Environmental Policy Act (NEPA) requires that an environmental impact statement for a proposed Federal action evaluate the impacts of the action with respect to the human environment, including its biological, economic, and social components. This chapter addresses the first of these dimensions, evaluating the impact of potential modifications to the Atlantic Large Whale Take Reduction Plan (ALWTRP) on the biological environment.[1] Of foremost concern to this evaluation is the direct effect of the potential regulations on the likelihood that North Atlantic right whales, humpback whales, and fin whales – all of which are federally listed endangered species – will be killed or seriously injured as a result of entanglement in commercial fishing gear. It is also necessary, however, to consider whether new regulations could indirectly affect these species by exposing them to different risks or by altering the habitat upon which they depend. In addition, it is important to consider the potential effect that changes in ALWTRP regulations might have on other aspects of the marine environment.

The discussion that follows presents an evaluation of these impacts. It focuses first on the use of NMFS' co-occurrence model to help characterize baseline conditions and the impact of alternative management measures (Section 5.1). It then evaluates the direct and indirect effects of revised ALWTRP regulations on Atlantic large whales, comparing the potential impacts of each of the regulatory alternatives under consideration, including NMFS' preferred alternative (Section 5.2). Finally, the chapter discusses other potential impacts on marine resources – including impacts on other protected species, directed catch, bycatch, and essential fish habitat – and compares the alternatives with respect to these impacts (Section 5.3).[2] The chapter is organized as follows:

- Section 5.1.1 gives a brief overview of the co-occurrence model;
- Section 5.1.2 highlights the key limitations of the model;
- Section 5.1.3 describes the results of a recent peer review of the model;

[1] Chapters 6 and 7 evaluate impacts on the economic and social environment, respectively.

[2] In this context, directed catch refers to the catch of species that are the target of commercial fishing effort. Bycatch refers to fish that are harvested but not sold or kept for personal use, including fish that are released because they are not profitable to sell (economic discards) and fish that are released due to catch limits (regulatory discards).

- Section 5.2.1 describes the potential direct and indirect effects of new gear modification and setting requirements on Atlantic large whales;

- Section 5.2.2 discusses the potential direct and indirect effects of changes to restricted times and areas on Atlantic large whales;

- Section 5.2.3 summarizes and compares the regulatory alternatives' potential impacts on Atlantic large whales;

- Section 5.3.1 discusses the potential impacts of the regulatory alternatives on other protected species;

- Section 5.3.2 describes the potential impacts of the regulatory alternatives on essential fish habitat;

- Section 5.3.3 discusses the potential impacts of the regulatory alternatives on directed catch and bycatch; and

- Section 5.3.4 summarizes and compares the potential effects of the regulatory alternatives on marine resources other than Atlantic large whales.

5.1 Evaluating Impacts Through the Use of NMFS' Co-Occurrence Model

5.1.1 Overview

NMFS' evaluation of the impact of potential regulatory changes on whale entanglement risks is largely qualitative. This approach is necessary because models that would enable NMFS to conduct a rigorous quantitative assessment of such risks are currently unavailable; however, efforts to gain a better understanding of the factors that contribute to entanglement risks are underway. In particular, NMFS has invested for a number of years in the development of a model designed to address the following types of questions:

- Where and how do the fisheries that are subject to the requirements of the ALWTRP operate?

- Where are concentrations of fishing line the greatest?

- Do whales frequent areas with high concentrations of fishing line?

Through the integration of information on fishing activity and gear configurations, this model characterizes geographic and temporal variations in fishing effort and the distribution of fishing line in waters subject to the ALWTRP. The model also incorporates information on whale sightings per unit of survey effort (SPUE) and identifies areas and times at which whales and commercial fishing gear are likely to co-occur. The model's final product is a set of indicators that provide information on factors that contribute to the risk of entanglement at various

locations and at different points in time. These indicators, in particular the number of vertical lines in an area and the area's co-occurrence score, assume to be related to the relative risk of entanglement in different locations. They also provide a basis for comparing the impact of alternative management measures on the potential for entanglements to occur. Readers interested in additional information on the model's structure, data, assumptions, and methods should consult its documentation, which is available for review on the ALWTRP website (http://www.nero.noaa.gov/Protected/whaletrp/index.html).

Exhibits 5-1 through 5-3 present maps illustrating the co-occurrence model's estimate of baseline co-occurrence scores for waters in the Northeast, Mid-Atlantic, and Southeast regions; the areas with the highest scores are those for which the data indicate more frequent sightings of whales and relatively high concentrations of vertical line. The scores shown represent the average for the period specified, based upon monthly data for activity in all fisheries subject to the ALWTRP and sightings of the two species at greatest risk due to interactions with commercial fishing gear: right and humpback whales. Appendix 5-A provides more detailed information, presenting maps of co-occurrence scores on a monthly basis; the ALWTRT used these maps to identify times and locations of high co-occurrence and to guide the development of proposals to reduce the risk of entanglement in particular areas. Implementing the measures specified under Alternatives 2 through 6 (Draft and Preferred) would result in a reduction in the co-occurrence score in these areas.

Exhibit 5-1

CO-OCCURRENCE OF VERTICAL LINES AND RIGHT/HUMPBACK WHALE SPUE: NORTHEAST REGION – BASELINE ANNUAL AVERAGE

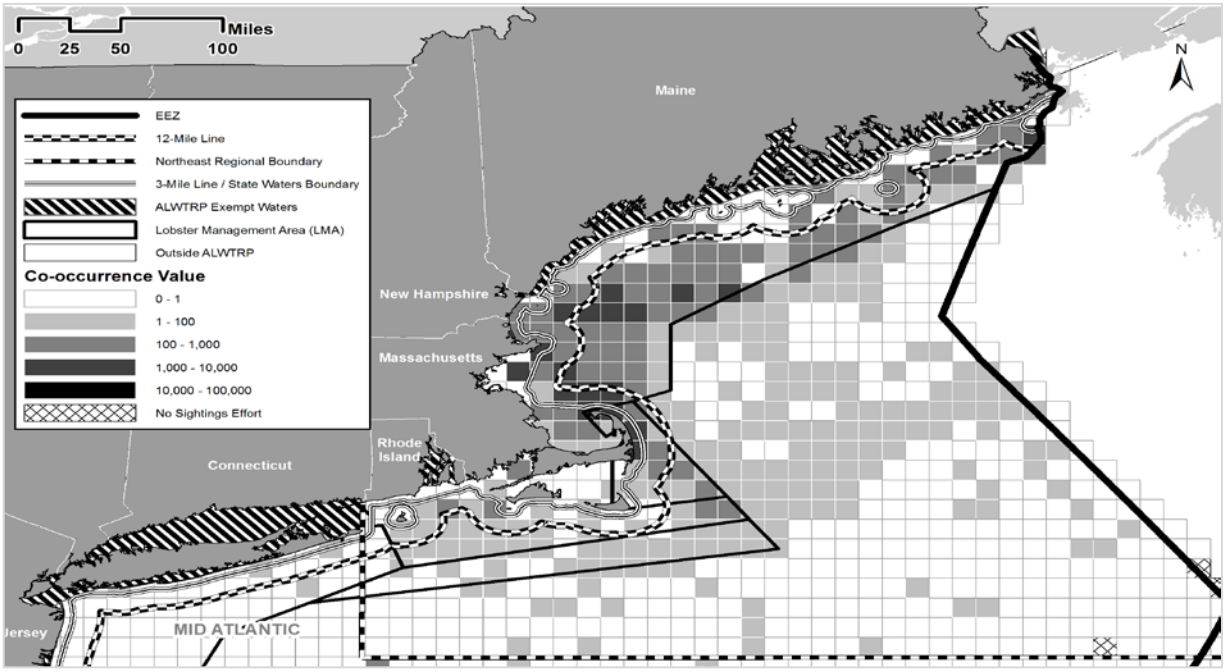


Exhibit 5-2

CO-OCCURRENCE OF VERTICAL LINES AND RIGHT/HUMPBACK WHALE SPUE: MID-ATLANTIC REGION – BASELINE ANNUAL AVERAGE

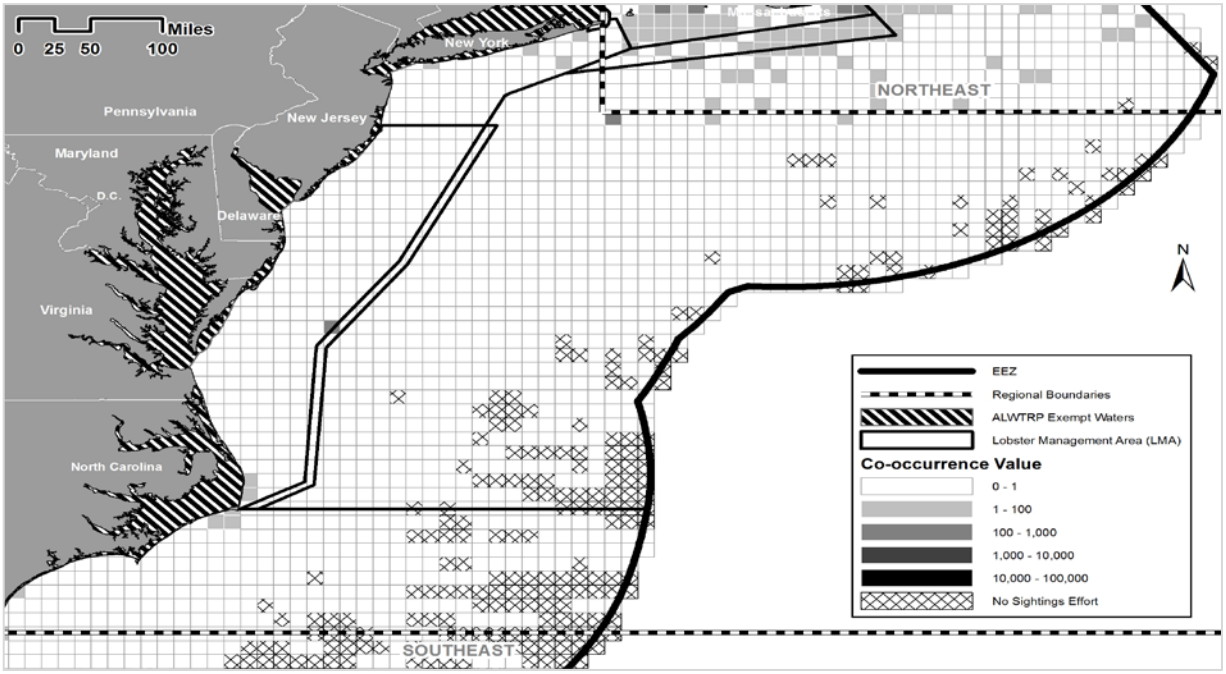
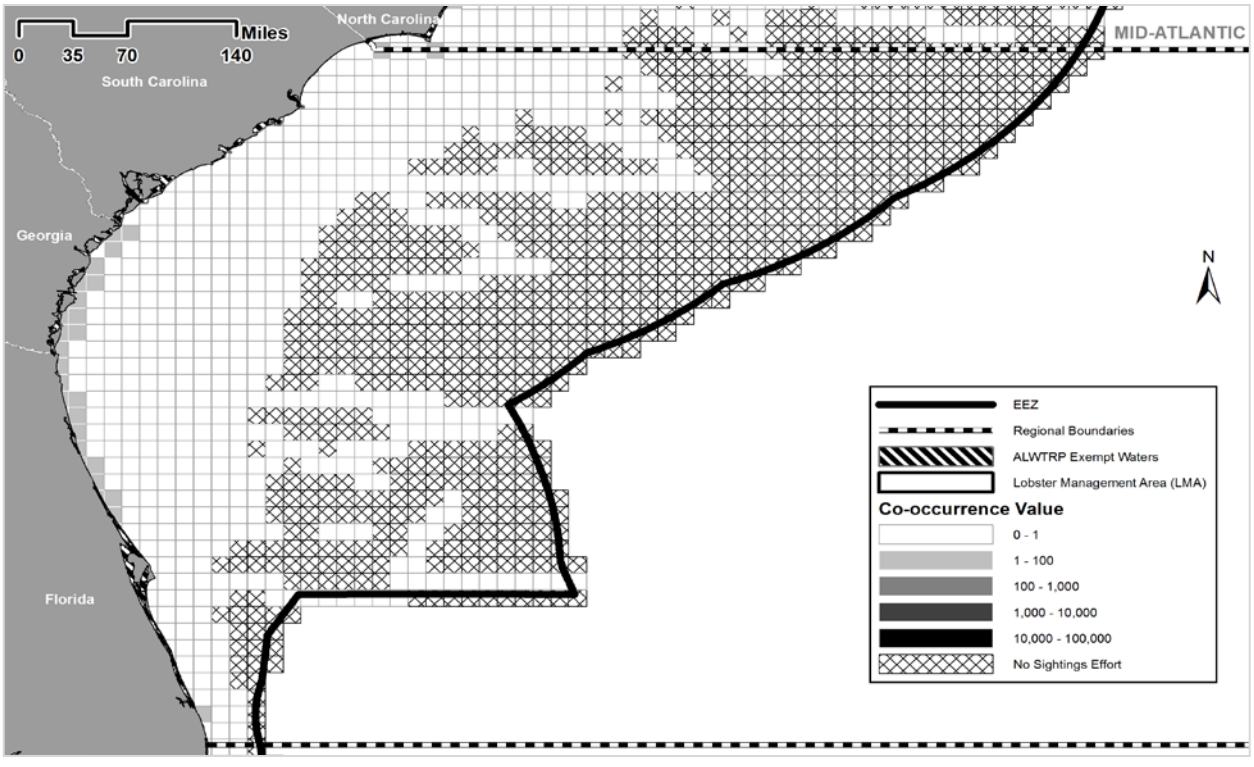


Exhibit 5-3

CO-OCCURRENCE OF VERTICAL LINES AND RIGHT/HUMPBACK WHALE SPUE: SOUTHEAST REGION – BASELINE AVERAGE NOVEMBER THROUGH APRIL



5.1.2 Limitations and Uncertainties

It is important to emphasize that the co-occurrence model does not directly measure entanglement risks. It neither provides a basis for estimating the frequency with which entanglements may occur nor does it provide a basis for estimating the probability that an entanglement will result in a serious injury or death. The risk of serious injury or mortality due to entanglements is likely to be a function of many factors. For example, the *probability* that an entanglement will occur may depend on the amount of gear deployed in a particular area, the number of whales that are present, whether the gear is actively tended, the behavior in which a whale is engaged when gear is encountered (e.g., whether the whale is feeding), or other factors. Similarly, the risk of injury or death *in the event of an entanglement* may depend on the characteristics of the whale involved (species, size, age, health, etc.), the nature of the gear (e.g., whether the gear incorporates weak links designed to help a whale free itself), human intervention (e.g., the feasibility or success of disentanglement efforts), or other variables. The interrelationships among these factors are not fully understood, and the data needed to provide a more complete characterization of risk are not available. If we make the reasonable assumption that the co-occurrence of many whales and many vertical lines produces a greater likelihood of an entanglement then, the co-occurrence model provides *relative indicators* of the potential for entanglements to occur in different areas and *relative indicators* of the effect that new regulatory requirements may have on the potential for an entanglement to occur. These indicators do not measure entanglement risks or changes in entanglement risks; however, they provide a relative sense of risks in different areas, as well as insight to the potential impact of alternative regulatory requirements on those risks.

In addition to the limitations noted above, the quality of the information the co-occurrence model provides is constrained by limitations in the data it employs. Because the data that drive the model were derived from disparate sources, including fishing reports, survey data, and expert judgment, it is not possible to quantify the uncertainty in the model's output. Nonetheless, it is important to recognize several key sources of uncertainty. These include:

- **Data on fishing activity and gear configurations in state waters vary in specificity and quality.** NMFS worked directly with state marine resource officials to develop defensible modeling assumptions for vessels fishing exclusively in state waters. For some states, key activity and gear configuration parameters are estimated based on reporting data (e.g., logbook data) furnished by fishermen in accordance with state requirements. For others, surveys are the primary source of this information. In some cases, these surveys are one-time efforts, while others are administered annually (e.g., recall surveys). Finally, for some states, the characterization of fishing activity is based upon the professional judgment of state fisheries experts. In several cases, the data are taken from a mix of sources (e.g., surveys and best professional judgment).

- **Federal lobster permits currently impose no trip reporting requirements.** Unlike Federal permits for other commercial fisheries, Federal lobster permits do not require their holders to report the location

of fishing activity; as a result, information on the location of trips taken by vessels that hold Federal lobster permits is limited to those that also hold permits for other fisheries (these vessels must report the location of all fishing activity). In the absence of better data, the model assumes that the activity of lobster vessels that are not required to file trip reports is distributed evenly throughout the Lobster Management Areas (LMAs) in which they are permitted to fish. This approach, which is detailed in the model's formal documentation, is a source of uncertainty, particularly in LMA 1, where the majority of non-reporting vessels operate.

- **SPUE data provide a limited basis for characterizing the distribution of whales.** The model relies on effort normalized (or adjusted) sightings data to characterize the recent historic (past 20 years) distribution of whales within the waters that are subject to the ALWTRP. Effort adjustments did not take into account that sightings data were from many platforms with differing levels of detectability. The dataset is not comprehensive coastwide, adding uncertainty to the analysis of both baseline co-occurrence scores and the impact of alternative management measures. In particular, uncertainty arises from the inclusion of SPUE values in areas with very low survey effort, and the absence of SPUE values (and therefore, co-occurrence values) in areas where effort-adjusted survey data are unavailable. In addition, other sources of information (e.g., acoustic data) indicate that both right whales and humpback whales may be present in places and at times at which no sightings have been recorded. Thus, the SPUE data are both an incomplete and imprecise indicator of the distribution of whales.

- **The geographic precision of the model's presentation of co-occurrence scores may be overstated.** Co-occurrence scores were generated from effort adjusted whale sightings information and estimates of vertical line in the water. The co-occurrence scores are assigned on a discrete basis to individual grid cells; this may imply a higher degree of geographic precision in characterizing the potential for an entanglement than the underlying data warrant.

The model's documentation (http://www.nero.noaa.gov/protected/whaletrp/eis2013/index.html) provides additional information on these issues. In light of the limitations noted above, NMFS relies on a qualitative assessment of the impact of alternative management measures on entanglement risks. Evaluation of the impact of different regulatory alternatives on the scores provided by the co-occurrence model is provided as a supplement to this assessment.

5.1.3 Peer Review

Before employing the co-occurrence model to assist in evaluating the impact of alternative management measures, NMFS sought a review of the model from the Center for Independent Experts (CIE). Three CIE reviewers with expertise in spatial analysis, scenario

modeling, marine mammal behavior, and fisheries management conducted an independent and impartial review of the model's documentation. Their findings are available on the ALWTRP website (http://www.nero.noaa.gov/Protected/whaletrp/index.html).

Although each of the peer reviewers noted the need to clarify some aspects of the model's documentation, the findings of the review overall were favorable. The reviewers indicated that the treatment of the data currently incorporated into the model was reasonable. They also provided ideas for improving the model as more information becomes available. In particular, the reviewers encouraged NMFS to continue to work with its state partners to improve the quality of the information available on gear use in fisheries subject to the ALWTRP. They also encouraged a more rigorous attempt to evaluate the sensitivity of the model's findings to the limitations in the SPUE data. In response to the latter concern, NMFS developed an analysis that examines the sensitivity of baseline co-occurrence scores to alternative assumptions about the presence of whales in areas for which SPUE data are not available or may be too limited to be reliable. Appendix 5-B presents the results of this analysis.

In addition to these findings, one reviewer suggested that the co-occurrence model be compared to other approaches or models as a way to attempt to validate the results. The only such model of which NMFS is aware is one being developed by Keene State College, Woods Hole Oceanographic Institution, New England Aquarium, and the Maine Lobstermen's Association (MLA). Although the MLA model was not fully vetted through the ALWTRT, its developers have shared information on it with NMFS. The model attempts to estimate the risk of whale encounters (as opposed to co-occurrence) as a function of fishing effort, whale activity, and bathymetry. While this model may be useful in the future, it currently focuses upon conditions in Maine waters and does not provide sufficient geographic coverage to evaluate baseline conditions or the impact of management measures in other areas subject to the ALWTRP. In contrast, NMFS' co-occurrence model is coastwide in scope and has been vetted through the ALWTRT on numerous occasions; its development has been heavily influenced by Team member's knowledge.[3] In light of these considerations, NMFS did not make use of the MLA model when developing the regulatory alternatives considered in this EIS. It is possible, however, that other stakeholders used their knowledge of this model when submitting management proposals.

[3] Since its development began in 2005, the co-occurrence model has undergone numerous updates and revisions, many of which reflect the guidance and assistance of the ALWTRT. The Team's input on the methods and data the model employs was sought during a series of presentations provided to the TRT. These presentations also served to provide the Team with regular progress reports on the model's development. Members of the TRT provided the information the model employs on fishing activity and gear configurations within state waters and also provided updated information on sightings of endangered whales. For a timeline detailing the model development process, including presentations to the TRT, see the model's formal documentation, which is available for review on the ALWTRP website (http://www.nero.noaa.gov/Protected/whaletrp/index.html).

5.2 Impacts to Atlantic Large Whales

The primary threat that commercial fishing poses to Atlantic large whales is the risk of incidental entanglement in commercial fishing gear. As noted in Chapter 2, such entanglement can cause serious injury or death. The regulatory changes under consideration are designed to reduce harm to large whales by reducing the likelihood of entanglement and/or reducing the severity of an entanglement should one occur. NMFS seeks to achieve these objectives through a combination of two general measures:

- gear modification and setting requirements; and
- restrictions on fishing activity at specified locations and times.

The discussion below examines the impact of these measures on whale entanglement risks, beginning with an evaluation of specific gear modification requirements and then turning to an assessment of other restrictions.[4] It is important to note that the No Action Alternative (Alternative 1) would not achieve the objectives listed above. If Alternative 1 were chosen, there would likely be additional incidents of serious injury and mortality to large whales due to entanglement in commercial fishing gear, rather than a reduction in these interactions. With no action, we would continue to have similar numbers of lethal and non-lethal takes of right and humpback whales in violation of both the MMPA and ESA.

5.2.1 Impacts of Gear Modification Requirements

The gear modification requirements under consideration fall generally into four categories: buoy line requirements, weak link and breaking strength requirements, set restrictions and gear marking requirements. The discussion below examines the impact of each of these measures on whale entanglement risks.[5]

5.2.1.1 Buoy Line Requirements

Like groundline, buoy line (i.e., line that is directly connected from a flotation device to gillnet or trap/pot gear) has been identified as a potential entanglement threat to Atlantic large whales.[6] Exhibit 5-4 provides an estimate of the average number of buoy lines deployed by fisheries subject to the ALWTRP in any given month. The majority of the lines are found in the

[4] The ALWTRP is designed to reduce the risk of serious injury and mortality of strategic stocks of North Atlantic right, humpback, and fin whales as a result of interactions with commercial fishing gear. Although it is not listed as endangered or threatened under the Endangered Species Act, the minke whale (*Balaenoptera acutorostrata*) is protected under the Marine Mammal Protection Act. Due to similarities in distribution, feeding behavior, and other characteristics, minke whales are believed to benefit from ALWTRP measures in much the same manner as the species the plan is designed to protect. Thus, the discussion of impacts to Atlantic large whales applies to minke whales as well as to North Atlantic right whales, humpback whales, and fin whales.

[5] For additional detail on which gear requirements apply to which vessels under existing regulations (i.e., Alternative 1, No Action), see Chapter 2. For similar details regarding Alternatives 2 through 6(Draft and Preferred), see Chapter 3.

[6] "Endline" and “vertical line” are alternative terms for buoy line.

Northeast, specifically within the lobster trap/pot industry. The buoy line requirements only impact trap/pot gear. The decision to focus on trap/pot gear is explained in Chapter 3.

Exhibit 5-4

NUMBER OF VERTICAL LINES DEPLOYED BY FISHERIES SUBJECT TO THE ALWTRP: MONTHLY AVERAGE

GEAR TYPE	COASTWIDE	NORTHEAST
Lobster Trap/Pot	224,457	220,330
Other Trap/Pot	7,905	5,630
Gillnet	1,501	615

Alternatives 2 through 6 (Draft and Preferred) incorporate several provisions pertaining to buoy lines that may reduce the frequency or severity of whale entanglements relative to Alternative 1. These provisions restrict the number of trap/pot buoy lines that fishermen can employ, based on the area in which they fish and the distance to shore. Under Alternative 1, the amount of vertical line in the water would remain unchanged, and the potential for entanglements would not be reduced. Alternatives 2 through 6 (Draft and Preferred) require some minimum number of traps per trawl and prohibit the use of singles in the Northeast region; these provisions would result in a decrease in the number of vertical lines in the water. Alternative 6 (Preferred) requirements differ slightly from Alternative 6 (Draft). As a result of public comment in some waters those fishing closer to shore or around islands can continue to fish using traditional practices. Alternatives 2 through 6 (Draft and Preferred) also propose to require a maximum breaking strength of vertical line in the Southeast region as well as keeping this vertical line free from objects. The following discussion examines the potential direct and indirect effects of these provisions.

Direct effects:

As an additional measure of protection, the alternatives analyzed would in several cases institute restrictions designed to reduce the number of buoy lines that fishermen employ. For example, Alternatives 2 through 6 (Draft and Preferred) would limit the number of lines in the Northeast by prohibiting single traps/pots and requiring fishermen to increase the number of traps per trawl set based on area and distance to shore. In some areas (mainly inshore and nearshore waters), this may represent a change from how they currently fish. In Federal waters and offshore, larger trawls are currently fished so this requirement may not affect these vessels to the same extent as smaller inshore vessels. The current requirement of one endline for trawls less than or equal to five traps remains in place. Due to safety concerns and the potential to increase the risk of gear loss, larger trawls would not be required to have one endline.

In an average month, roughly 227,000 total trap/pot vertical lines are deployed in the Northeast. The restrictions on the number of buoy lines in the Northeast region when combined with other restrictions (closures) would result in estimated reductions of 30 to 38% of endlines depending on the Alternative (Exhibit 5-5). The difference in the requirements in Alternative 6 (Preferred) does not result in a substantial change from what was previously analyzed in Alternative 6 (Draft) as evident in Exhibit 5-5. This reduction in vertical lines results in a

reduction of the potential risk of entanglement through reducing the likelihood that whales and gear would co-occur in the same area at the same time. This reduction is depicted in the reduction of co-occurrence score of roughly 36 to 42% depending on the Alternative (Exhibit 5-6). All measures combined would result in a 29 to 36% reduction coastwide and a 36 to 42% reduction in co-occurrence coastwide. NMFS believes the requirement to 'trawl up' would result in a decrease in the risk of entanglement to large whales.

Exhibit 5-5

ANNUAL REDUCTION IN NUMBER OF VERTICAL LINES COMPARED TO NO ACTION

ALTERNATIVE	COASTWIDE*	COASTWIDE**	NORTHEAST*	NORTHEAST**
2	35.3%	--	36.7%	--
3	29.7%	29.6%	30.9%	30.8%
4	36.5%	35.4%	38%	36.8%
5	31%	29.7%	32.1%	30.9%
6 (Draft)	29.1%	28.5%	30.3%	29.6%
6 (Preferred)	29%	28.3%	30.1%	29.5%
* Assumes 100% suspension of fishing in closure areas ** Assumes displacement from closure areas				

Exhibit 5-6

ANNUAL REDUCTION IN CO-OCCURRENCE COMPARED TO NO ACTION

ALTERNATIVE	COASTWIDE*	COASTWIDE**	NORTHEAST*	NORTHEAST**
2	35.8%	--	36.1%	--
3	37.4%	37.2%	37.7%	37.4%
4	40.5%	38.7%	40.8%	39%
5	41.7%	39.7%	42%	40%
6 (Draft)	38%	37.4%	38.2%	37.7%
6 (Preferred)	37.9%	37.4%	38.2%	37.7%
* Assumes 100% suspension of fishing in closure areas ** Assumes displacement from closure areas				

In the Southeast, Alternatives 2-6 (Draft and Preferred) would require a restriction on the breaking strength of buoylines depending on where you fish. In Florida state waters, the breaking strength of line may be no more than 1,500 lbs. In Georgia and South Carolina, the breaking strength of line may be no more than 2,200 lbs.

Knowlton et al. (2011) reported that age plays a role in a right whale's ability to break free of rope and that adults may be better able to break free from ropes of lower breaking strength than ropes of greater breaking strength. ALWTRT members broadly supported a maximum rope breaking strength of 1,500 pounds in the Florida blue crab fishery provided the rope currently used by the fishery in Northeast Florida (No. 8 Osprey line) is tested and does not

exceed a 1,500 pound breaking strength. NMFS tested No. 8 Osprey line and found it to have less than 1,500 pound breaking strength[7].

Through scoping meetings and state fishery representatives, NMFS learned that most fishermen in Georgia and South Carolina use No. 8 or No. 10 Osprey line as vertical lines in their blue crab trap/pot gear configurations. NMFS tested No. 10 Osprey line and found it to have less than 2,200 pound breaking strength. Although the ALWTRT did not consider a maximum breaking strength for vertical lines off GA or SC, NMFS believes that the combination of limited right whale occurrence in GA and SC state waters and the proposed 2,200 pound breaking strength requirement will sufficiently protect right whales because there is a low probability of interaction between whales and gear and this measure prevents the use of vertical lines with greater breaking strength. Therefore, requiring 1,500 lbs and 2,200 lbs of breaking strength line off Northeast Florida and Georgia/South Carolina, respectively, will likely protect right whales while not impacting blue crab fishermen who have traditionally fished in these areas.

Also in the Southeast, all buoy lines must be made from sinking line, free of objects, and single trap/pots would be required. This differs from what is proposed in the Northeast to account for differences in right whale life history stage and environmental factors between the two regions.

The core right whale calving area located within the Southeast U.S. is of particular conservation concern due to the presence of neophyte calves and reproducing females. Small neonate calves are weak swimmers and lack physical and behavioral developments that increase buoyancy (Thomas and Taber 1984) – all traits that likely contribute to a whale's ability to survive an interaction with fishery gear. Reproducing females are the most valuable demographic unit of the right whale population. Right whale mother/calf pairs meander about in the Southeast U.S. for several weeks, resulting in increased exposure to potential fishing gear. These observations are supported by FWC/FWRI aerial survey data (FWC/FWRI 2012). In contrast, NMFS' understanding is that most right whales use the Mid-Atlantic as a migratory corridor. That is, whales travel through the area, but likely do not linger for weeks or months at a time like they do in other habitats. For example, models developed by Schick et al. (2009) suggest an average time of 21-24 days for right whales to travel from Jacksonville, Florida to Long Island, New York (approximate linear distance of 900 miles). Trawls are heavier, and gear configurations are more complex than single traps. Consequently, neophyte calves would be more likely to survive an interaction with a single trap than with a trawl which is made up of multiple traps.

An increase in blue crab fishing efforts was observed in Northeast Florida state waters during the 2011/2012 calving season (FWC unpub. data). Gear was inspected and found to be rigged in various and unusual ways including: weights placed mid-line, floats placed mid-line (likely to comply with line marking requirements), and other various configurations (knots, splices, various lengths tied together, etc.) of polypropylene line. Many of the rigging configurations had not been observed or anticipated previously. Line through the mouth of a baleen whale is thought to be one of the more frequent forms of entanglement (Knowlton &

[7] Personal Communication, John Kenney, NOAA Fisheries, NERO, May-July 2012.

Kraus 2001). Gear that is splice-free, knot-free, and/or free of attachments may be more likely to slide through the whale's baleen *freeing* the animal rather than become lodged in the mouth or elsewhere creating a serious injury or mortality risk. In contrast, line that is knotted or has attachments can more easily entangle as well as increase the complexity of the entanglement, and thus, decreasing the likelihood that the whale can free itself. NMFS believes the proposed requirement of fishing with one continuous piece of line will reduce risk to right whales by eliminating configurations that clutter the vertical line with objects that may impede the line from sliding through small spaces between a whale's baleen.

Indirect effects:

The indirect effects of the requirements described above depend upon whether they would result in an increase in gear loss, with a resulting increase in the risk that whales may become entangled in ghost gear. In 2012, Maine DMR developed and implemented a project designed, in part, to assess the impacts of longer trawls on catch in the lobster fishery. Maine DMR asked participants to record whether they lost gear while hauling. Overall, the sample of gear loss incidents in the project is too small to draw reliable conclusions about how trawling influences gear loss. In 2010 and 2011, the Massachusetts DMF completed a comprehensive study of gear loss and "ghost" fishing (i.e., impacts from lost or derelict gear). Overall, these data indicate that rather than exacerbating gear loss, trawling requirements may reduce the amount of gear lost and thereby yield an economic benefit to affected fishermen. It is unclear whether the buoy line restrictions described above would lead to an overall increase in gear loss. Available data assessing how trawling requirements could affect gear loss are inconclusive. These changes could help to reduce the potential for whales to become entangled in lost gear.

5.2.1.2 Weak Link Requirements

The ALWTRP requires the use of weak links with breaking strengths of 600 to 1,500 lbs depending on management area. Compared to Alternative 1 (No Action), Alternatives 2-6 (Draft and Preferred) propose to decrease the required breaking strength of weak links in Florida state waters. This would reduce the likelihood that interactions between whales and commercial fishing gear will result in entanglements that cause serious injury or mortality. Alternative 1 would maintain the status quo, and the potential for entanglements to result in serious injury and mortality would not be decreased. There is no difference in requirements from Alternative 6 (Draft) and Alternative 6 (Preferred). The following discussion further explores the potential direct and indirect effects of these standards.

Direct effects:

Weak link requirements are designed to reduce the number of interactions between whales and commercial fishing gear that result in a serious entanglement.[8] Currently, the

[8] NMFS has worked with several gear manufacturers to develop weak links for the lobster trap/pot and gillnet fisheries (NMFS, 2002). The specifications of breaking strengths incorporated in Alternatives 2 through 6 (Draft and Preferred) are based upon data collected by the NMFA Gear Research Team that measured the loads

breaking strength of weak links in Florida state waters is 600 lbs. Alternatives 2-6 (Draft and Preferred) propose to reduce this breaking strength requirement to 200 lbs.

As previously noted, buoy lines have been identified as a source of entanglement risk. The requirement to weaken the strength of weak links in buoy lines is specifically designed to reduce entanglements and serious injury due to entanglements in and around the mouth as a result of interactions with buoy lines and surface systems. In such a case, the theory of operation is that the forward motion of the whale will pull the buoy line through the whale's mouth until the buoy and weak link impinge against the baleen. At this point, the combination of the whale's momentum and the weight of the gear on the lower end of the buoy line or drag created by towing gear will cause the load to increase until the weak link parts, allowing the buoy and weak link to detach from the line and remain outside the whale's mouth. The bitter end of the buoy line would then continue to be pulled through the baleen until it exits the whale's mouth. Adding a weak link on all devices attached to the buoy line increases the likelihood that a line sliding through a whale's mouth will break away quickly at the buoy before the whale begins to thrash and become more entangled.[9]

Right whale mother/calf pairs in the calving area are most often sighted in water depths of 10 to 20 m (Keller et al. 2012). The greatest co-occurrence of trap/pot gear and right whales occurs off the Northeast Florida shoreline. Florida state waters are deeper and can be greater than 10 m deep within 1/3 of a mile off the beach, whereas Georgia and South Carolina state oceanic waters are generally less than 10 m deep (please reference NOAA nautical charts). Therefore, neophyte calf and reproducing female interactions with trap pot gear are a greater risk in Florida state waters than in Georgia or South Carolina state waters.

Requiring weak links in Florida state waters of the Southeast U.S. Restricted Area North is a measure designed to help mitigate the risk in an area where there is a high co-occurrence of right whales and blue crab trap/pot gear. The blue crab fishery is the primary commercial trap/pot fishery active in Florida state waters of the Southeast U.S. Restricted Area North. Weak links with less than 600 lb breaking strength are already used by Northeast Florida blue crab fishermen (August 23, 2011 Scoping Meeting Comments, Jacksonville, FL). The ALWTRT broadly supported 100 pound weak link breaking strength for the blue crab fishery off Florida, pending results of breaking strength tests of weak links currently used by the fishery (2012 ALWTRT Meeting Key Outcomes Memorandum). Breaking strength tests of weak link rigs that could be used in North Florida revealed breaking strength to be between 131.5 lbs to 167.6 lbs.[10] Based on these tests, NMFS is proposing weak links with 200 lb breaking strength for Florida state waters. Although this measure primarily affects blue crab fishermen, it will be applied to all affected ALWTRT trap/pot fisheries in the Florida state waters of the Southeast U.S.

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exerted on buoy systems. This data was collected over the course of several years of at-sea testing from Maine to North Carolina in both inshore and offshore fisheries.

[9] There have been three documented entanglement cases in which the gear recovered included weak links attached to buoys. This includes two events (one in 2002, the other in 2003) in which weak links were recovered that had not released. In both of these cases the buoy line wrapped around the whale's tail stock, a situation that the weak link in the line was not designed to address. A third event involved a weak link placed directly under the surface system. In this case, the weak link did release, allowing the whale to swim free of the anchoring gear. A disentanglement team later removed the gear that remained with the whale.

[10] Personal Communication, John Kenney, NOAA Fisheries, NERO, August 2012.

Restricted Area North. This allows for enforceability ease because it eliminates potential confusion of differentiating between blue crab trap/pot gear and Atlantic mixed species trap/pot gear.

Indirect effects:

Gear research indicates that the installation of weak links is unlikely to increase the rate of gear loss, and thus, is unlikely to increase the risk that whales could become entangled in ghost gear. Several weak link requirements have been implemented under previous ALWTRP initiatives, and the NMFS Gear Research Team reports that they have received few comments regarding problems with the failure of any of these devices. The NMFS Gear Research Team has conducted a series of research projects that measured the loads exerted on buoy systems when used in typical conditions at different locations (NMFS, 2002; NMFS, 2003). [11]

5.2.1.3 Set Restrictions Requirements

The potential regulatory changes resulting from Alternatives 2 through 6 (Draft and Preferred) include the requirement to haul trap/pot gear at the end of every trip in Federal waters within the Southeast Restricted Area North management area. Currently, the requirement is to haul gear once every 30 days. Under Alternative 1 (No Action), this 30 day requirement would remain in place, and there would not be a reduction of soak time that may result in a reduced risk of entanglement.

Direct effects:

The provisions noted above would contribute directly to the protection of Atlantic large whales. The restrictions are designed to reduce the risk of entanglement of large whales via reduced soak time for long soaking gear.

In Federal waters, the current status quo for black sea bass fishermen is to drop single pots near underground relief habitat and then retrieve them by the trips' end (typically within less than 24 hours)[12]. Furthermore, Southern black sea bass fishermen have not fished during the November through April time period since December 2009.

[11] In addition to the information provided above, the NMFS Gear Research Team notes the possibility that the use of weak links could reduce the amount of gear that is lost due to gear conflicts. For example, if snagged gear parts at a weak link, it is less likely to be dragged away from where it was originally set; this increases the chance that the gear will be recovered. This observation is supported by the experience of several Maine fishermen, who have reported that weak links on buoy systems allowed buoys to pop off when trawlers towed through their gear. Although weak links were not designed for such purposes, the fishermen involved believe that their presence in this case prevented their gear from being towed away and permanently lost. In these situations, the fishermen were able to recover all of their gear and avoid the creation of additional ghost gear.

[12] As defined in SAFMC South Atlantic Snapper Grouper Amendment 18A.

These changes would in large part codify current fishing practices. Nonetheless, this requirement could help to reduce entanglement risks, both by ensuring that current practices are adhered to and by guaranteeing that these practices do not change.

Indirect effects:

Any indirect effects associated with the above-noted restrictions are likely to be positive. In particular, because the restrictions prohibit affected fishermen from leaving their gear unattended while their vessels return to port, the restrictions may reduce gear loss, and thus, benefit large whales by reducing the risk of entanglement in ghost gear.

5.2.1.4 Gear Marking

With the exception of Alternative 1 (No Action), all of the regulatory alternatives under consideration would establish new gear marking requirements. Alternatives 2 through 6 (Draft) include a common gear marking scheme that would result in the incorporation of approximately 1.1 million new marks into the gear subject to ALWTRP regulations. Alternative 6 (Preferred) would require approximately 393,000 new marks.

The gear marking provisions are designed to improve NMFS' ability to identify the gear involved in an entanglement. As discussed below, these provisions would have no immediate direct impact on entanglement risks. In the long run, however, they may help NMFS to target and improve its efforts to protect large whales.

Direct effects:

When compared to Alternative 1 (No Action), Alternatives 2 through 6 (Draft and Preferred) would strengthen most of the ALWTRP's current gear marking requirements. Currently the marking system only requires one mark. In place of the current standards, gillnet, lobster trap/pot, and other trap/pot vessels would be required to identify buoy lines with a mark equal to 12” in length and buoy lines must be marked three times (top, middle, bottom). This would result in larger and more frequent marks when compared to the No Action alternative. The No Action alternative would continue a gear marking system that is currently insufficient for identifying the origins of gear. A mark distinguishing state from Federal waters within the Southeast Restricted Area North would be also required. The remainder of the color schemes for the gear marking strategy would remain the same.

The regulatory provisions described above would have neither direct impact on the probability of whales becoming entangled in commercial fishing gear nor would they affect the severity of an entanglement should one occur. As noted below, however, potential changes in gear marking requirements could have an indirect effect on whale entanglement risks.

Indirect effects:

A critical issue in understanding the nature of large whale entanglements is obtaining information about the gear involved. Currently, gear removal from entangled animals provides the only reliable information about the nature of entanglements (Johnson et al., 2005). However, it is often difficult to connect the gear in which a whale is entangled with a particular fishery, because entangled whales often carry only a portion of the gear they have encountered and disentanglement efforts sometimes recover only some of the remaining gear. The gear marking requirements under consideration would help to generate information on the nature of the gear involved in an entanglement. In addition, these provisions would in some cases allow NMFS to identify the owner of the gear, and thus, allow the agency to gather additional information on where, when, and how the gear was set. By increasing scientific understanding of the nature of large whale entanglements, gear marking measures would allow NMFS, over time, to improve the effectiveness of the ALWTRP. Thus, these measures are expected to contribute indirectly to the preservation and restoration of whale stocks.

The ALWTRP's current gear marking requirements provide for a single four-inch mark on buoy lines midway in the water column. The bigger, more frequent marks would increase the chances of identifying fragments of line that may be visible on or recovered from an entangled whale.

5.2.2 Impacts from Changes to Restricted Times and Areas

In addition to gear modification requirements, the potential changes to the ALWTRP include a range of restrictions on the location and timing of fishing activity. The discussion below addresses the direct and indirect effects of the following provisions:

- Seasonal closures
- Addition of exempted waters in New Hampshire and buffers in Maine

5.2.2.1 Seasonal Closures

Alternative 1 (No Action) and Alternative 2 do not propose additional closures and would instead maintain the status quo. Currently, two areas are closed to gillnet fishing, and one area is closed to trap/pot fishing. Maintaining the status quo would not result in a reduced risk of entanglement as the number of vertical lines in the water would remain the same. Alternatives 3-6 (Draft and Preferred) propose anywhere from 1 to 3 new closures. The proposed closures would affect all trap/pot gear. Alternative 3 proposes a closure in the Cape Cod Bay Restricted Area. Currently, this area is closed to gillnet fishing from January 1 to May 15. The proposed closure would include trap/pots from February 1 to April 30. Alternatives 4 and 5 replace the CCB closure proposed in Alternative 3 with a larger closure area that encompasses the Outer Cape and extends to the Great South Channel (Massachusetts Restricted Area #1). This closure would be in place from January 1 to April 30. Alternatives 4 and 5 close Massachusetts Restricted Area #1 and also include a seasonal closure of both Jeffreys Ledge and Jordan Basin.

Alternative 6 (Draft and Preferred) both propose a closure of Cape Cod Bay and the Outer Cape (Massachusetts Restricted Area #2) from January 1 to April 30.

Direct effects:

The effects of each closure vary, yet all would benefit whales. In some cases, however, the impacts of a closure are likely minor. The level of fishing effort varies as does the number of vessels affected by the closure. Closures were analyzed two ways. First, it was assumed that 100% of the vessels would suspend fishing (Exhibit 5-7). Second, it was assumed that some of the vessels would continue to fish (Exhibit 5-8). The true effect of these closures is most likely within the range of these two options.

Exhibit 5-7

EFFECTS OF SEASONAL CLOSURES COMPARED TO NO ACTION
(Presuming 100% Suspend Fishing)

ALTERNATIVE	CLOSURE	TIME PERIOD	AVG # OF AFFECTED FTE VESSELS	AVG # OF LINES REMOVED
3	CCB Restricted Area	Feb. 1 - April 30	16	841
4 and 5	Jeffreys Ledge	Oct. 1 - Jan. 31	69	15,262
	Jordan Basin	Nov.1 - Jan.31	5	
	Massachusetts Restricted Area #1	Jan. 1 - April 30	110	
6 (Draft)	Massachusetts Restricted Area #2	Jan. 1 - April 30	109	6,329
6 (Preferred)	Massachusetts Restricted Area #2	Jan. 1 - April 30	109	6,329

Exhibit 5-8

EFFECTS OF SEASONAL CLOSURES COMPARED TO NO ACTION
(Presuming Some Relocation)

ALTERNATIVE	CLOSURE	TIME PERIOD	% OF VESSELS THAT WOULD RELOCATE	AVG # OF LINES REMOVED
3	CCB Restricted Area	Feb. 1 - April 30	89.6	134
4 and 5	Jeffreys Ledge	Oct. 1 - Jan. 31	100	6,627 – 7,107
	Jordan Basin	Nov.1 - Jan.31	100	
	Massachusetts Restricted Area #1	Jan. 1 - April 30	84.2	
6 (Draft)	Massachusetts Restricted Area #2	Jan. 1 - April 30	84.1	1,910
6 (Preferred)	Massachusetts Restricted Area #2	Jan. 1 - April 30	84.1	1,910

The multiple closures proposed in the Alternative 4 and 5 result in the biggest conservation benefit to large whales. The percent change in co-occurrence (Exhibit 5-9 and 5-10) varies by alternative based on the number of closures in the alternative and if you assume displacement or suspension of fishing. In both cases, the closures and the proposed management measures under Alternative 5 result in the highest reduction in co-occurrence or risk of entanglement.

Exhibit 5-9

ANNUAL REDUCTION IN CO-OCCURRENCE COMPARED TO NO ACTION (Presuming 100% Suspension)

ALTERNATIVE	COASTWIDE	NORTHEAST
3	37.4%	37.7%
4	40.5%	40.8%
5	41.7%	42%
6 (Draft)	38%	38.2%
6 (Preferred)	37.9%	38.2%

Exhibit 5-10

ANNUAL REDUCTION IN CO-OCCURRENCE COMPARED TO NO ACTION (Presuming Some Relocation)

ALTERNATIVE	COASTWIDE	NORTHEAST
3	37.2%	37.4%
4	38.7%	39%
5	39.7%	40%
6 (Draft)	37.4%	37.7%
6 (Preferred)	37.4%	37.7%

Indirect effects:

The provisions noted above could have indirect beneficial effects on large whales by tempering the possible expansion of trap/pot fisheries. Any vessels entering into these fisheries would be subject to the seasonal closure of the restricted areas. The closures could have negative indirect benefits if effort is relocated just outside the closure area. This relocated effort may result in a wall of fishing gear, which would increase risk of entanglement in the area directly adjacent to the closed areas.

5.2.2.2 Addition of Exempted Waters and Buffers

The ALWTRP currently exempts certain bays, harbors, inlets, and other coastal waters from the provisions of the plan (see Chapter 2). Alternative 6 (Preferred) would expand these areas to include an exemption from the minimum number of traps per trawl in New Hampshire state waters this differs from what was proposed under Alternative 6 (Draft). Alternative 6 (Draft) proposed to exempt New Hampshire state waters from all requirements in the ALWTRP. Alternative 6 (Preferred) would not relax current requirements. NMFS would continue to monitor all exempted areas and encourage New Hampshire to develop contingency plans in the event a large whale is sighted in state waters. New Hampshire has a coastline of eleven nautical miles which, because of state seaward boundaries narrows to less than eight nautical miles at its narrowest point. Located approximately seven miles off the New Hampshire seacoast are the Isles of Shoals. The majority of these islands are located in Maine state waters. New Hampshire has four harbors, one being a deep water port shared with Maine, which are all currently exempted waters. This potential change has been developed in response to a request from the New Hampshire state fishery management agency and is designed to ensure that the ALWTRP does not unnecessarily extend commercial fishing regulations to waters in which endangered or protected whales are at low risk from impacts due to entanglement (*e.g.* areas where large whales are not present). Those fishing in New Hampshire state waters would still be required to abide by all current requirements.

Alternative 6 (Preferred) would also establish quarter-mile buffer areas around three Maine islands: Matinicus Island, Ragged Island (located adjacent to Matinicus), and Monhegan Island. Vessels fishing in these areas would not be subject to minimum trawl length requirements. The rationale for the buffers, described further in Chapter 3, focuses on the likely absence of whales in close proximity to these islands and bottom conditions that favor the use of single traps. There is no buffer are proposed in any of the other Alternatives.

Direct effects:

The co-occurrence model does not indicate any monthly co-occurrence concerns with the exception of November within nearshore state waters. Other studies on right whale distribution (see Asaro, 2012) show right whales sightings near the shoreline, albeit not spatially or temporally co-occurring with fishing gear. During the month of November, effort within state waters is already being reduced due to part-time and limited commercial harvesters seasonally removing gear from state waters and Federal/state commercial and limited commercial harvesters are moving to Federal waters. The State of New Hampshire has already been very active in reducing the gear entanglement risk of large whales through current and past regulations and current fishing practices. The majority of the commercial fishing industry already practices multiple trap trawls with an average of 10 traps per trawl for commercial licensees, 6 trap trawls for limited commercial licensees, and 3 trap trawls for part time commercial licensees. The seasonality of the lobster fishery, which accounts for the largest number of vertical lines in state waters, is such that when large whales are present in state waters (according to the co-occurrence model) the number of vertical lines are diminishing as recreational, part-time commercial and limited commercial lobster harvesters are pulling gear out of the water for the winter season.

Those familiar with the Maine islands note that the quantity of gear likely to be set within the buffer areas is small. Experts at the Island Institute, a non-profit organization devoted to protecting Maine's remote island and coastal communities, indicate that only five to 10 lobstermen work the waters around Monhegan.[13] Likewise, only about 10 to 15 lobstermen fish the waters surrounding Matinicus and Ragged Islands. Those fishing closest to the islands (many of whom are nearing retirement or are young entrants learning the trade) tend to use smaller vessels and fewer traps, further reducing the quantity of gear in the water.[14]

These areas that would not be required to abide by the minimum number of traps per trawl requirement is an area in which whales are unlikely to be found, as suggested both by NMFS' review of the data and its current understanding of whale behavior, as well an area where whales are at low risk from impacts due to entanglement. Therefore, exempting this area from the minimum number of traps per trawl regulations is believed to be unlikely to have significant direct effects on endangered or protected whales.

Indirect effects:

Exempting certain areas from the minimum number of traps per trawl requirement may encourage some fishermen to shift their activity to those areas. If this were to result in a decrease in fishing activity in areas that whales are more likely to frequent, it would help to reduce entanglement risks.[15]

Improved targeting of ALWTRP regulations might also increase support for their implementation within the commercial fishing community. Fishermen are more likely to comply with restrictions on their operations when they understand that those restrictions serve a beneficial purpose. Requiring fishermen to comply with ALWTRP requirements where whales are unlikely to be encountered, can undermine belief in the need for the requirements and may ultimately undermine compliance with the plan in other areas. To the extent that the designation of exempted areas makes clear that ALWTRP regulations are designed to apply where entanglement risks are low, it may foster improved compliance, and thus indirectly assist in preserving and restoring endangered or protected whale species.

5.2.3 Comparison of Biological Impacts Across Regulatory Alternatives

The biological impacts described in the previous section vary across the regulatory alternatives. This section compares the direct and indirect biological impacts of each alternative. Where sufficient information is available, the alternatives are compared using quantitative criteria. The discussion is divided into two parts:

[13] Personal communication with Nick Battista, Marine Programs Director, Island Institute, November 25, 2013.

[14] The waters around Monhegan Island are governed by a conservation agreement established by the Maine Department of Marine Resources and the Maine Legislature. The agreement limits fishing to 250 days from October to June and allows a maximum of 400 traps per vessel. Personal communication with Erin Summers, Maine Department of Marine Resources, January 13, 2014.

[15] It is also possible that fishermen who modify their gear to comply with ALWTRP requirements would use the same gear in exempted areas. To the extent this occurred, whales would experience a greater degree of protection than the regulations require.

- First, it describes the criteria used to compare the direct and indirect impacts of each regulatory provision;

- Second, it compares the direct and indirect impacts across regulatory alternatives.

5.2.3.1 Comparison Criteria

As previously noted, the discussion of the biological impacts of new ALWTRP requirements on whale entanglement risks is largely qualitative. This approach is necessary because models that would enable NMFS to conduct a rigorous quantitative assessment of such risks are currently unavailable. In some instances, however, it is possible to develop quantitative indicators of the impact of alternative regulations by using change in vertical lines and co-occurrence as proxies as indicators of risk of entanglement.

Exhibit 5-11 summarizes the quantitative indicators developed to compare the biological impacts of the regulatory alternatives under consideration. As the exhibit shows, most of the indicators reflect changes in the number of vessels subject to ALWTRP requirements, changes in the number of vertical lines in the water or changes in co-occurrence score. These indicators do not measure biological changes in entanglement risks, but offer useful information on factors that likely, based on expert opinion, correlate with such risks.

The list of quantitative indicators does not address the impacts of the following provisions:

- changes to exempted waters

As previously noted, the impacts of these provisions under Alternatives 2 through 6 (Draft and Preferred) compared to Alternative 1 are expected to be similar. Because differences among the alternatives with respect to the impact of these provisions should be negligible, they are excluded from the analysis.

Exhibit 5-11

RISK REDUCTION INDICATORS

Regulatory Provision		Impact	Risk Reduction Indicator
Major Gear Requirements			
Buoy line	Increase number of traps per trawl.	Direct benefit to large whales by reducing the amount of buoy lines in water column	Additional vessels required to comply. Percent reduction in number of vertical lines and co-occurrence score
	Breaking strength	Increase ability of whales to break free of entanglement	
	Single buoy line provision	Reduce risk of entanglement of calves resulting in serious injury or mortality	
Weak links	Weaker weak links required on buoy lines in Florida state waters	Direct benefit to large whales specifically right whale calves by increasing the number of effective breaking points in fishing gear.	Number of buoy lines equipped with weaker weak links.
Set restrictions	Bring your gear back to shore at end of trip.	Direct benefit to large whales by reducing the interaction between large whales and untended fishing gear.	Additional vessels required to comply
Gear marking	Marking of buoy lines	Indirect benefit to large whales by increasing scientific understanding of the nature of large whale entanglements.	Number of new gear marks
Changes to Restricted Times and Areas			
Seasonal Closures	Closure in Jordan Basin (Nov. 1-Jan 31)	Direct benefit to large whales by decreasing the potential for interactions between large whales and fishing gear and increasing the area of protection afforded to large whales.	Additional vessels required to comply. Reduction in number of vertical lines and co-occurrence score
	Closure in Jeffreys Ledge (Oct. 1-Jan 31)	Direct benefit to large whales by decreasing the potential for interactions between large whales and fishing gear and increasing the area of protection afforded to large whales.	Additional vessels required to comply. Reduction in number of vertical lines and co-occurrence score
	Closure in Cape Cod Bay (Feb. 1-April 30)	Direct benefit to large whales by decreasing the potential for interactions between large whales and fishing gear and increasing the area of protection afforded to large whales.	Additional vessels required to comply. Reduction in number of vertical lines and co-occurrence score
	Closure in Cape Cod Bay, Outer Cape and abutting Great South Channel: Massachusetts Restricted Area #1 (Jan. 1-April 30)	Direct benefit to large whales by decreasing the potential for interactions between large whales and fishing gear and increasing the area of protection afforded to large whales.	Additional vessels required to comply. Reduction in number of vertical lines and co-occurrence score
	Closure in Cape Cod Bay and Outer Cape: Massachusetts Restricted Area #2 (Jan. 1-April 30)	Direct benefit to large whales by decreasing the potential for interactions between large whales and fishing gear and increasing the area of protection afforded to large whales.	Additional vessels required to comply. Reduction in number of vertical lines and co-occurrence score

Notes:
Closures would be in effect for all trap/pot gear.

5.2.3.2 Comparison of Regulatory Alternatives

Quantitative Risk Reduction Indicators

Exhibits 5-12 and 5-13 compare the impacts of Alternatives 2 through 6 (Draft and Preferred) using a variety of indicators that are likely to correlate with reduced entanglement risk to Atlantic large whales. The analysis evaluates the impact of new ALWTRP requirements relative to the status quo — i.e., a baseline scenario that assumes no change in existing ALWTRP requirements. This baseline scenario is equivalent to Alternative 1 (No Action). As previously stated, it is important to note that the No Action Alternative (Alternative 1) would not achieve the objective of reducing harm to large whales by reducing the likelihood of entanglement and/or reducing the severity of an entanglement should one occur. If Alternative 1 were chosen, the current unacceptable rate of serious injury and mortality to large whales due to entanglement in commercial fishing gear would continue (or increase due to increasing whale populations), rather than be reduced. The Alternatives are similar in geographic range and requirements. The main difference among the Alternatives is the number of closures and minimum traps per trawl requirements; as such the impacts of each Alternative are quite similar.

The DEIS analyzed the impacts of Alternatives 2 through Alternative 6 (Draft). In response to public comment Alternative 6 (Draft) was modified as previously described and Alternative 6 (Preferred) was created. These modifications are within the range of previously analyzed effects and do not constitute a substantial changes from the DEIS. Alternative 6 (Preferred) results in a lower number of vessels affected by the proposed measures but the total percent reduction in number of vertical lines and co-occurrence remains similar.

Alternatives 3 through 6 (Draft and Preferred) proposed closures so the analysis was conducted two ways to account for the potential for two fishing industry responses to the closures—relocation or suspension of fishing. The responses have different implications for each Alternative, but for the most part the impact of each response is similar.

Depending on the size of these closures, up to 110 vessels may be impacted. The extent of the impact varies. In some cases, it is assumed that 100% of the vessels would relocate to fish in areas outside the closure areas. In other cases it is assumed that up to 84% of the boats would relocate. In all cases, there would be a change in the number of vertical lines in the area and thus, a change in co-occurrence and potential for risk reduction as a result of the closures.

The highest degree of protection in both scenarios results from Alternative 5 due to the combination of the strictest measures proposed in each of the alternatives as well as the most proposed closures. Alternative 6 (Preferred) is in the middle of the range of protection. Alternatively, the lowest degree of protection results from Alternative 2. Alternative 2 is the only Alternative that does not propose a closure; therefore, you would expect the impacts resulting from this Alternative to be less than the others. The least number of vessels are affected by implementing Alternative 6 (Preferred).

Exhibit 5-12

COMPARISON OF IMPACTS BY ALTERNATIVE (assuming 100% suspend fishing): QUANTITATIVE RISK REDUCTION INDICATOR

	Regulatory Alternatives					
Regulatory Provision	**2**	**3**	**4**	**5**	**6 (Draft)**	**6 (Preferred)**
Gear Requirements						
Buoy Line						
Increase number of traps per trawl						
Number of FTE Affected Vessels	1,817	1,392	1,834	1,400	1,364	1,357
Breaking Strength						
Number of FTE Affected Vessels	21	21	21	21	21	21
Single buoy line provision						
Number of FTE Affected Vessels	21	21	21	21	21	21
Weak Link						
Number of buoy lines affected	3,048	3,048	3,048	3,048	3,048	3,048
Set Restrictions						
Number of FTE Affected Vessels	12	12	12	12	12	12
Gear Marking						
Number of new marks	1.1 million	1.1 million	1.1 million	1.1 million	1.1 million	393,295
Seasonal Closure						
Closure in Jordan Basin (Nov. 1 – Jan. 31)						
Number of FTE Affected Vessels	0	0	5	5	0	0
# Reduction in VL	0	0	15,262	15,262	0	0
Closure in Jeffreys Ledge (Oct.1 - Jan. 31)						
Number of Affected Vessels	0	0	69	69	0	0
# Reduction in VL	0	0	15,262	15,262	0	0
Closure in Cape Cod Bay (Feb. 1 - Apr. 30)						
Number of Affected Vessels	0	16	0	0	0	0
# Reduction in VL	0	841	0	0	0	0
Closure in Massachusetts Restricted Area #1 (Jan. 1 - Apr. 30)						
Number of FTE Affected Vessels	0	0	110	110	0	0
# Reduction in VL	0	0	15,262	15,262	0	0
Closure in Massachusetts Restricted Area #2 (Jan. 1 - Apr. 30)						
Number of FTE Affected Vessels	0	0	0	0	109	109
# Reduction in VL	0	0	0	0	6,329	6,329
Total % Reduction in VL	35.3	29.7	36.5	30.9	29.1	29
Total % Reduction in CO	35.8	37.4	40.5	41.7	38	37.9

Notes:

- The #Reduction of VL for Alternatives 4 and 5 is a combination of all the proposed closures.
- FTE Active Vessels stands for Full Term Equivalent vessel. Using Federal and state data sources, the model estimates the number of commercial fishing vessels that participate in each fishery. Depending on the location and fishery, the model employs a variety of methods to estimate the number of active vessels this differs from the number of permitted vessels.

Key:
0 = no change
VL= Vertical Line
CO= co-occurrence

Exhibit 5-13

COMPARISON OF IMPACTS BY ALTERNATIVE (presuming some relocation): QUANTITATIVE RISK REDUCTION INDICATOR

	Regulatory Alternatives					
Regulatory Provision	**2**	**3**	**4**	**5**	**6 (Draft)**	**6 (Preferred)**
Gear Requirements						
Buoy Line						
Increase number of traps per trawl						
Number of FTE Affected Vessels	1,817	1,392	1,834	1,400	1,364	1,357
Breaking Strength						
Number of FTE Affected Vessels	21	21	21	21	21	21
Single buoy line provision						
Number of FTE Affected Vessels	21	21	21	21	21	21
Weak Link						
Number of buoy lines affected	3,048	3,048	3,048	3,048	3,048	3,048
Set Restrictions						
Number of FTE Affected Vessels	12	12	12	12	12	12
Gear Marking						
Number of new marks	1.1 million	1.1 million	1.1 million	1.1 million	1.1 million	393,295
Seasonal Closure						
Closure in Jordan Basin (Nov. 1 – Jan. 31)						
Number of FTE Affected Vessels	0	0	5	5	0	0
# Reduction in VL	0	0	15,262	15,262	0	0
Closure in Jeffreys Ledge (Oct.1 - Jan. 31)						
Number of Affected Vessels	0	0	69	69	0	0
# Reduction in VL	0	0	15,262	15,262	0	0
Closure in Cape Cod Bay (Feb. 1 - Apr. 30)						
Number of Affected Vessels	0	16	0	0	0	
# Reduction in VL	0	841	0	0	0	0
Closure in Massachusetts Restricted Area #1 (Jan. 1 - Apr. 30)						
Number of FTE Affected Vessels	0	0	110	110	0	0
# Reduction in VL	0	0	15,262	15,262	0	0
Closure in Massachusetts Restricted Area #2 (Jan. 1 - Apr. 30)						
Number of FTE Affected Vessels	0	0	0	0	109	109
# Reduction in VL	0	0	0	0	6,329	6,329
Total % Reduction in VL	35.3	29.6	35.4	29.7	28.5	28.3
Total % Reduction in CO	35.8	37.2	38.7	39.7	37.4	37.4

Notes:

- The #Reduction of VL for Alternatives 4 and 5 is a combination of all the proposed closures.
- FTE Active Vessels stands for Full Term Equivalent vessel. Using Federal and state data sources, the model estimates the number of commercial fishing vessels that participate in each fishery. Depending on the location and fishery, the model employs a variety of methods to estimate the number of active vessels this differs from the number of permitted vessels.

Key:
0 = no change
VL= Vertical Line
CO= co-occurrence

5.3 OTHER IMPACTS

In addition to impacts on large whale species, changes to ALWTRP regulations may affect other aspects of the marine environment, including other protected species, essential fish habitat, and directed catch and bycatch in affected fisheries. The remainder of this chapter discusses these potential effects, which are summarized in Exhibit 5-14. As the exhibit indicates, there is no significant difference among Alternatives 2 through 6 (Draft and Preferred) compared to No Action with respect to impacts on essential fish habitat, directed catch, or bycatch; in each case, the impacts are expected to be minor. The alternatives differ, however, with respect to the ancillary benefits they would afford other protected species. As the following discussion explains, these differences stem from differences in the extent to which the alternatives would mandate gear modification requirements that could prove beneficial to potentially affected species of whales, porpoises, dolphins, seals, and sea turtles.

Exhibit 5-14

IMPACTS OF REGULATORY ALTERNATIVES ON OTHER PROTECTED SPECIES, ESSENTIAL FISH HABITAT, DIRECTED CATCH, AND BYCATCH

Regulatory Alternative	Impacts on Other Protected Species	Impacts on Essential Fish Habitat	Impacts on Directed Catch and Bycatch
Alternative 1 (No Action)	• Less conservation benefit and no reduced risk of entanglement	• No additional impact to benthic habitats • Impacts to essential fish habitat remain the same • Would not receive potential positive effects to habitat as a result of proposed seasonal closures	• No additional impact to directed catch and bycatch • Level of catch and bycatch remain the same
Alternative 2	• Buoy line requirements could help directly reduce entanglement risks for sea turtles, whales, dolphins, porpoises, and seals; gear marking requirements could provide an indirect benefit. Weak link requirements may benefit blue, sei, and sperm whales, since these species would possess the size and strength for weak links to function properly. Benefits of requirements would be realized in all regulated areas year-round.	• Potential changes in gear loss rates associated with gear modification requirements could have an indirect negative effect on the benthic environment.	• Gear modification requirements are expected to have limited impact on directed catch or bycatch.

Exhibit 5-14

IMPACTS OF REGULATORY ALTERNATIVES ON OTHER PROTECTED SPECIES, ESSENTIAL FISH HABITAT, DIRECTED CATCH, AND BYCATCH

Regulatory Alternative	Impacts on Other Protected Species	Impacts on Essential Fish Habitat	Impacts on Directed Catch and Bycatch
Alternative 3	• Buoy line requirements could help directly reduce entanglement risks for sea turtles, whales, dolphins, porpoises, and seals; gear marking requirements could provide an indirect benefit. Weak link requirements may benefit blue, sei, and sperm whales, since these species would possess the size and strength for weak links to function properly. Benefits of requirements would be realized year-round. • Seasonal closure of Cape Cod Bay Restricted Area could provide limited ancillary benefits to sea turtles, sei whales, harbor porpoises, seals, and some pelagic delphinids that may be present when the closure is in effect. • Expansion of exempted waters could increase entanglement risks in these areas for some other protected species, such as sea turtles.	• Potential increase in fishing pressure in exempted areas could have an adverse impact on the benthic environment. • Potential changes in gear loss rates associated with gear modification requirements could have an indirect negative effect on the benthic environment.	• Gear modification requirements are expected to have limited impact on directed catch or bycatch. • Seasonal closure of Cape Cod Bay Restricted Area should have minimal impact. • Potential increase in fishing pressure in exempted areas could reduce directed catch in those areas.

Exhibit 5-14

IMPACTS OF REGULATORY ALTERNATIVES ON OTHER PROTECTED SPECIES, ESSENTIAL FISH HABITAT, DIRECTED CATCH, AND BYCATCH

Regulatory Alternative	Impacts on Other Protected Species	Impacts on Essential Fish Habitat	Impacts on Directed Catch and Bycatch
Alternative 4	• Buoy line requirements could help directly reduce entanglement risks for sea turtles, whales, dolphins, porpoises, and seals; gear marking requirements could provide an indirect benefit. Weak link requirements may benefit blue, sei, and sperm whales, since these species would possess the size and strength for weak links to function properly. Benefits of gear modification requirements would be realized year-round. • Seasonal closures could provide limited ancillary benefits to sea turtles, sei whales, harbor porpoises, seals, and some pelagic delphinids that may be present when the closures are in effect.	• Potential changes in gear loss rates associated with gear modification requirements could have an indirect negative effect on the benthic environment.	• Gear modification requirements are expected to have limited impact on directed catch or bycatch. • Seasonal closures should have minimal impact. • Potential increase in fishing pressure in areas just outside the closure areas could reduce directed catch in those areas.
Alternative 5	• Buoy line requirements could help directly reduce entanglement risks for sea turtles, whales, dolphins, porpoises, and seals; gear marking requirements could provide an indirect benefit. Weak link requirements may benefit blue, sei, and sperm whales, since these species would possess the size and strength for weak links to function properly. Benefits of requirements would be realized year-round. • Seasonal closures could provide limited ancillary benefits to sea turtles, sei whales, harbor porpoises, seals, and some pelagic delphinids that may be present when the closure is in effect. • Expansion of exempted waters could increase entanglement risks in these areas for some other protected species, such as sea turtles.	• Potential increase in fishing pressure in exempted areas could have an adverse impact on the benthic environment. • Potential changes in gear loss rates associated with gear modification requirements could have an indirect negative effect on the benthic environment.	• Gear modification requirements are expected to have limited impact on directed catch or bycatch. • Seasonal closures should have minimal impact. • Potential increase in fishing pressure in exempted areas and areas just outside the closure areas could reduce directed catch in those areas.

Exhibit 5-14

IMPACTS OF REGULATORY ALTERNATIVES ON OTHER PROTECTED SPECIES, ESSENTIAL FISH HABITAT, DIRECTED CATCH, AND BYCATCH

Regulatory Alternative	Impacts on Other Protected Species	Impacts on Essential Fish Habitat	Impacts on Directed Catch and Bycatch
Alternative 6 (Draft)	• Buoy line requirements could help directly reduce entanglement risks for sea turtles, whales, dolphins, porpoises, and seals; gear marking requirements could provide an indirect benefit. Weak link requirements may benefit blue, sei, and sperm whales, since these species would possess the size and strength for weak links to function properly. Benefits of requirements would be realized year-round. • Seasonal closures could provide limited ancillary benefits to sea turtles, sei whales, harbor porpoises, seals, and some pelagic delphinids that may be present when the closure is in effect. • Expansion of exempted waters could increase entanglement risks in these areas for some other protected species, such as sea turtles.	• Potential increase in fishing pressure in exempted areas could have an adverse impact on the benthic environment. • Potential changes in gear loss rates associated with gear modification requirements could have an indirect negative effect on the benthic environment.	• Gear modification requirements are expected to have limited impact on directed catch or bycatch. • Seasonal closures should have minimal impact. • Potential increase in fishing pressure in exempted areas and areas just outside the closure area could reduce directed catch in those areas.

Exhibit 5-14

IMPACTS OF REGULATORY ALTERNATIVES ON OTHER PROTECTED SPECIES, ESSENTIAL FISH HABITAT, DIRECTED CATCH, AND BYCATCH

Regulatory Alternative	Impacts on Other Protected Species	Impacts on Essential Fish Habitat	Impacts on Directed Catch and Bycatch
Alternative 6 (Preferred)	• Buoy line requirements could help directly reduce entanglement risks for sea turtles, whales, dolphins, porpoises, and seals; gear marking requirements could provide an indirect benefit. Weak link requirements may benefit blue, sei, and sperm whales, since these species would possess the size and strength for weak links to function properly. Benefits of requirements would be realized year-round. • Seasonal closures could provide limited ancillary benefits to sea turtles, sei whales, harbor porpoises, seals, and some pelagic delphinids that may be present when the closure is in effect. • Expansion of exempted waters could increase entanglement risks in these areas for some other protected species, such as sea turtles.	• Potential increase in fishing pressure in exempted areas could have an adverse impact on the benthic environment. • Potential changes in gear loss rates associated with gear modification requirements could have an indirect negative effect on the benthic environment.	• Gear modification requirements are expected to have limited impact on directed catch or bycatch. • Seasonal closures should have minimal impact. • Potential increase in fishing pressure in exempted areas and areas just outside the closure area could reduce directed catch in those areas.

5.3.1 Impacts to Other Protected Species

In addition to the large whales discussed in Section 5.1, other protected species in the waters subject to regulation under the ALWTRP can become entangled in commercial fishing gear. Some other protected species, such as the shortnose sturgeon, the Gulf of Maine distinct population segment of Atlantic salmon, roseate terns, and piping plovers, which are listed under the Endangered Species Act, also utilize waters potentially subject to ALWTRP requirements. These species, however, are minimally affected by the commercial fishing operations that are regulated under the ALWTRP. Hence, the biological impacts analysis does not address these species.

This section assesses the potential impact of modifications to the ALWTRP on other ESA listed species, and non-ESA listed marine mammals. The ESA listed species include Kemp's ridley, loggerhead, leatherback, green, and hawksbill sea turtles, as well as sperm, blue, and sei whales. Leatherback, Kemp's ridley, green (Florida and Pacific coast of Mexico breeding populations), and hawksbill turtles are listed as endangered under the Endangered Species Act, while loggerhead turtles are listed as threatened. Non-ESA listed marine mammals include harbor porpoises, coastal bottlenose dolphins, Atlantic white-sided dolphins, Risso's dolphins, pelagic delphinids (spotted dolphins, striped dolphins, pilot whales, offshore bottlenose dolphins, and common dolphins), and harbor, gray, and harp seals. Bottlenose dolphins (coastal stock), pilot whales, and common dolphins are considered neither endangered nor threatened but are afforded protection as strategic stocks under the Marine Mammal Protection Act.

NMFS believes that some of the other protected species whose ranges overlap with the fisheries managed by the ALWTRP may be potentially affected by the proposed changes outlined in this EIS. For Atlantic white-sided, spotted, striped, offshore bottlenose, and Risso's dolphins, and harbor, gray, and harp seals, the total fishery-related mortality and serious injury for potentially affected stocks are considered to be insignificant and approaching a zero mortality and serious injury rate.[16] However, as a precautionary approach, NMFS considers these species potentially affected due to the possible overlap between the fisheries regulated under the ALWTRP and the range of these species.

The Nova Scotian stock of sei whales occurs only in the Northeast and Mid-Atlantic (Waring et al., 2012); therefore, the potential ALWTRP effects related to these species are only discussed for these areas. Hawksbill sea turtles have a southerly distribution; therefore, the potential ALWTRP effects related to this species are only discussed for measures pertaining to the Southeast.

[16] As documented in the following U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessment Reports for the Western North Atlantic (WNA) stock of each species: for striped and Atlantic spotted dolphins, Waring et al. (2000); for pantropical spotted and Risso's dolphins, Waring et al. (2002); for Atlantic white-sided and offshore bottlenose dolphins, harbor, gray, and harp seals (Gulf of Maine/Bay of Fundy stock), Waring et al. (2003).

5.3.1.1 Buoy Line Requirements

In addition to the large whales discussed in Section 5.1, other protected species in the waters subject to regulation under the ALWTRP are known to become entangled in lobster, other trap/pot, and gillnet buoy lines (NMFS, 2001a; NMFS, 2001b; NMFS, 2001c; NMFS, 2001d).[17] In particular, NMFS receives several reports of leatherback entanglements in lobster trap/pot buoy lines every year. From 2002-2011, there were 133 reports of entangled leatherbacks from Maine to Virginia. Data collected by the Sea Turtle Stranding and Salvage Network (STSSN) and NMFS also indicate that whelk trap/pot gear has been involved in a number of reported leatherback entanglements in Massachusetts and New Jersey waters (NMFS unpublished data, 2001). Research suggests that leatherbacks may be attracted to buoys because they resemble jellyfish, which is one of the turtles' prey. Leatherbacks and loggerheads may also attempt to feed on the bivalves, algae, and gelatinous organisms that colonize buoys and ropes (NMFS, 2001a). Once a sea turtle becomes entangled, its mobility is impaired and its ability to feed may be hampered. Entangled turtles may eventually drown under the weight of the gear or if the trailing gear becomes lodged on rocks or ledges below the surface.

Alternative 1 (No Action) would not result in additional conservation gain for other protected species. As described previously, the regulatory changes proposed under Alternatives 2 through 6 (Preferred) include several provisions pertaining to buoy lines which are designed to reduce large whale entanglement risks. For example, while it is currently recommended that fishermen keep lines as knot free as possible, Alternatives 2 through 6 (Draft and Preferred) would require this in the Southeast. This could benefit other protected species, such as sea turtles, by reducing the likelihood that line would become lodged around appendages.

The Alternatives analyzed would also impose restrictions on the number of buoy lines that fishermen employ in the Northeast. Singles would be prohibited, and fishermen would be required to use trawls for 2 to 20 trap/pots. By helping to reduce the amount of buoy line in the water column, these measures would help to reduce the entanglement risks faced by other protected species, as well as large whales.

Although the commercial fisheries regulated under the ALWTRP may affect blue and sperm whales, there seems to be significant separation between the known feeding range of these species and primary fishing areas. In addition, Waring et al. (2012) indicate that the level of fishery interaction is insignificant and approaching a zero mortality and serious injury rate. Therefore, the gear used in the commercial fisheries regulated under the ALWTRP is not likely to adversely affect blue or sperm whales.

Due to similarities in distribution, feeding behavior, and other characteristics, sei whales are believed to benefit from ALWTRP measures in much the same manner as the large whale species the plan is designed to protect.

Bottlenose dolphins, harbor porpoises, Atlantic white-sided dolphins, pelagic delphinids (pilot whales, and spotted, striped, and common dolphins), and harbor, gray, and harp seals more

[17] With respect to other trap/pot fisheries, NMFS has documented the entanglement of sea turtles in buoy lines associated with whelk, crab, and black sea bass trap/pot gear.

commonly become ensnared in nets rather than lines; however, marine mammals could become entangled in buoy line, and any reduction in the amount of line in the water column should decrease the risk of entanglement for these species.

5.3.1.2 Weak Link Requirements

Alternative 1 (No Action) would maintain status quo of weak link requirements and not reduce the potential for a serious injury or mortality to occur after an entanglement. As described previously, provisions in Alternatives 2 through 6 (Draft and Preferred) require the incorporation of weaker weak links on trap/pot gear in the Southeast Region. This requirement is designed to reduce the likelihood that interactions between whales and commercial fishing gear will result in entanglements that cause serious injury or death.

These provisions, which are specifically designed to reduce the risk of serious injury or mortality to large whales, are likely to have a beneficial effect for other protected species of similar size and strength. For example, in the unlikely event of an entanglement, blue, sei, and sperm whales may benefit from the weak link requirements, because they would possess the size and strength necessary for the weak links to function properly. Decreasing the strength of the current weak links will benefit smaller animals, including bottlenose dolphins, harbor porpoises, Atlantic white-sided dolphins, pelagic delphinids (pilot whales, and spotted, striped, and common dolphins), harbor, gray and harp seals, and sea turtles, that otherwise may have lacked the strength to break weak links as strong as those that are currently required under the ALWTRP.

5.3.1.3 Set Restrictions Requirements

The No Action Alternative would maintain the status quo. Fishermen are currently required to bring their gear back to shore every 30 days. The potential regulatory changes under analysis in Alternatives 2 through 6 (Draft and Preferred) include requiring trap/pot fishermen fishing in the Federal waters of Southeast US Restricted Area North to bring their gear back to shore at the conclusion of each trip.

The provisions proposed under Alternatives 2 through 6 (Draft and Preferred) could help to reduce entanglement risks for other protected species. This requirement may help to reduce instances in which failure to tend gear contributes to the entanglement of other protected species. The No Action alternative would not reduce the risk of entanglement of other protected species.

As previously stated, the implementation of this requirement would offer ancillary benefits of varying degree to other protected species, depending on their presence in the affected area and the alternative implemented.

5.3.1.4 Gear Marking Requirements

With the exception of Alternative 1 (No Action), all of the regulatory alternatives under consideration would impose new gear marking requirements. Alternative 1 would maintain the current gear marking scheme that is currently inadequate for identifying the gear related to entanglements. Alternatives 2 through 6 (Draft) include a common gear marking scheme that would result in the incorporation of approximately 1.1 million new marks into the gear subject to ALWTRP regulations. Alternative 6 (Preferred) would incorporate approximately 393,295 new marks. As with whales, these requirements would have neither direct impact on the probability of other protected species becoming entangled in commercial fishing gear nor would they affect the severity of an entanglement should one occur. Nonetheless, the gear marking requirements under consideration would help to generate information on the nature of the gear involved in an entanglement of any protected species. In addition, these provisions would in some cases allow NMFS to identify the owner of the gear, and thus, allow the agency to gather additional information on where, when, and how the gear was set. By increasing scientific understanding of the nature of entanglements, the gear marking measures would allow NMFS, over time, to improve the effectiveness of programs designed to reduce the entanglement risks faced by other protected species. Thus, these measures could contribute indirectly to the preservation and restoration of the other potentially-affected protected species.

5.3.1.5 Seasonal Closures

Under the No Action Alternative and Alternative 2, the number of closures currently in place would remain the same. There would be no additional conservation benefit to other protected species as a result of Alternatives 1 or 2. Under Alternatives 3 through 6 (Draft and Preferred) a number of trap/pot fishery closures are under consideration. The closure of Jordan Basin would be from November 1-January 31. Jeffreys Ledge would be closed from October 1-January 31. Three different potential closures of Cape Cod Bay Restricted Area and surrounding areas were analyzed. Under Alternative 3, the area would be closed from February 1-April 30. Under Alternatives 4 and 5, the area would be expanded to include the Outer Cape and abuts the Great South Channel (Massachusetts Restricted Area #1). This closure would be in place from January 1-April 30. Under Alternative 6 (Draft and Preferred), the Cape Cod Bay closure would include the Outer Cape and would be in effect from January 1-April 30 (Massachusetts Restricted Area #2).

The closures described above could have a beneficial impact on sea turtles, but such benefits are likely to be limited. Leatherback, loggerhead, and Kemp's ridley sea turtles generally do not appear in the Cape Cod Bay Restricted Area or Gulf of Maine until June, when the closures are no longer in effect. Green sea turtles use the Gulf of Maine as a summer habitat so the closures would have minimal impact on them as well. As a result, the benefits of prohibiting such activity are likely to be minor, except to the extent that the prohibition prevents the possible future expansion of driftnet, anchored float gillnet, or other trap/pot fisheries into this area.

The closures described above could have a beneficial impact on blue, sei, and sperm whales, but such benefits are likely to be limited. Blue and sperm whales are typically not

reported in either the Cape Cod Bay Restricted Area or the Massachusetts Restricted Areas. Blue whales are most frequently sighted in the waters off eastern Canada, with the majority of recent records from the Gulf of St. Lawrence (Sears et al., 1987). At most, the blue whale is considered an occasional visitor in the U.S. Atlantic EEZ, which may represent the southern limit of its feeding range. The waters in which it has been sighted, however, are still well north of the Restricted Areas identified by the ALWTRP (CETAP, 1982; Wenzel et al., 1988). Similarly, the distribution of sperm whales in the U.S. Atlantic EEZ occurs on the edge of the continental shelf, over the continental slope, and into mid-ocean (Waring et al., 2007). Given the distinct offshore distribution of this species, sperm whales are unlikely to benefit from fishery closures in Cape Cod Bay or the area connecting to the Great South Channel.

In contrast, sei whales may benefit from the fishery closures described above. Although sei whales are often found in the deeper waters that characterize the edge of the continental shelf (Hain et al., 1985), NMFS aerial surveys found substantial numbers of sei whales south of Nantucket in the spring of 2001. The general offshore pattern of sei whale distribution is sometimes disrupted during episodic incursions into more shallow and inshore waters (Waring et al., 2003). In addition, sei whales (like right whales) are largely planktivorous, primarily feeding on euphausiids and copepods; this has resulted in reports of sei whales in more inshore locations, such as the Great South Channel (in 1987 and 1989) and Stellwagen Bank (in 1986) (Waring et al., 2003). Therefore, sei whales may benefit from the fishery closures in Cape Cod Bay and the area connecting to the Great South Channel during their periodic incursions into these waters.

For reasons similar to those discussed for blue and sperm whales, the closures described above are likely to offer limited benefits to harbor porpoises, Atlantic white-sided dolphins, pelagic delphinids, bottlenose dolphins, and harbor, gray, and harp seals. The western North Atlantic coastal migratory stock of bottlenose dolphins is generally distributed south of Long Island; thus, fishery closures are unlikely to have a significant impact on entanglement risks for this species. Harbor porpoises, Atlantic white-sided dolphins, and pelagic delphinids, however, are more common in New England waters. To the extent that fishery closures help to reduce overall fishing effort (rather than simply divert it to other areas where these species may also be present), entanglement risks to these species may be reduced.

5.3.1.6 Addition of Exempted Waters

As previously noted, the ALWTRP currently exempts certain bays, harbors, inlets, and other coastal waters from the provisions of the plan (see Chapter 2).

Expanding exempted areas as described above under Alternatives 3, 4, and 6 (Draft and Preferred) would primarily affect lobster trap/pot vessels that are currently subject to the ALWTRP requirements for Northern Inshore State Trap/Pot Waters. Under Alternative 6 (Draft) fishing in New Hampshire state waters would be exempted from the all the ALWTRP requirements. Under the preferred alternative (Alternative 6 Preferred) those fishing in New Hampshire state waters and in the buffer waters surrounding certain Maine Islands would be not be required to fish with a minimum number of traps per trawl. They would not be exempted from the gear marking requirements or current requirements. The requirements currently in place in these areas are as follows:

- Compliance with the Universal Requirements
  - No buoy line floating at the surface.
  - No wet storage of gear
  - Fishermen are encouraged, but not required, to maintain knot-free buoy lines.
- Trap/pot surface buoys to be marked to identify the vessel or fishery.
- Buoy lines to be marked with one 4-inch red mark midway along the buoy line.
- All buoys, floatation devices and/or weights must be attached to the buoy line with a weak link having a breaking strength of no greater than 600 lbs.
- All groundlines must be made of sinking line.

Blue, sei, and sperm whales are not expected to be affected by the change in exempted waters these species are not known to occur in these areas. Likewise maintaining the status quo under Alternatives 1,2, and 4 would not affect blue, sei, or sperm whales either. As previously discussed, several of these requirements (e.g., weak link provisions) are unlikely to provide any ancillary benefit to smaller protected species, such as sea turtles, bottlenose dolphins, Atlantic white-sided dolphins, Risso's dolphins, pelagic delphinids, harbor porpoises, or harbor, gray and harp seals; however, increasing trawl size could afford such benefits. Thus, relative to the status quo, relieving previously regulated vessels from these ALWTRP requirements could have an adverse impact on other protected species that may occur in newly-exempted waters. The potential for adverse effects may be greatest for sea turtles. Loggerhead and Kemp's ridley turtles prefer inshore waters and embayments for foraging on crustaceans and mollusks (NMFS, 2001b). Leatherbacks may also swim into shallow waters if there is an abundance of jellyfish nearshore.

Depending on the season, 10 to 220 active vessels fish in New Hampshire state waters. Roughly 25% of these vessels fish in already exempt waters. Thus, the expansion of exempted waters in this state would likely affect a relatively large number of vessels, which in turn could have an adverse impact on other protected species, particularly leatherbacks. Alternatively, there are only 20-25 fishermen fishing in the waters surrounding Matinicus Island, Monhegan Island, and Ragged Island. There currently is no evidence of interactions between Kemp's ridleys or green turtles and lobster trap/pot gear, and very limited information about interactions between loggerheads and lobster trap/pot gear.

From 2002 to 2013, there were no confirmed records of a leatherback entanglement in NH waters and four in waters near the Maine islands. The four confirmed animals were

disentangled and released alive, therefore the likelihood of adverse impacts on leatherbacks is minimal.

5.3.2 Impacts to Essential Fish Habitat

As noted in Chapter 4, using the types of fixed fishing gear regulated under the ALWTRP (i.e., traps/pots and anchored gillnets) can affect essential fish habitat primarily through the gear's impacts on the benthic environment. Such impacts generally arise as a result of contact between fishing gear and the sea floor, especially during the setting and retrieval of the gear. In some cases, bottom contact can alter the physical structure of the seabed, injure or kill benthic organisms, alter the structure and productivity of the benthic community, contribute to the suspension of sediments, and cause changes in the chemical composition of the water column overlying affected sediments. However, the habitat impacts of mobile, bottom-tending gear are much more severe than the impacts attributed to fixed, bottom-tending gear (see Section 4.4.4.1).

The regulatory alternatives under consideration are likely to have no more than a temporary or minimally adverse impact on the benthic environment (see Section 5.2.2.2). The regulatory provisions with the greatest potential to affect benthic habitat are those that may influence contact between ALWTRP-regulated gear and the sea floor. As discussed below, the provisions of interest are those pertaining to exempted waters and to buoy line and weak link requirements.

5.3.2.1 Exempted and Buffer Waters

As described above, Alternatives 3,5, and 6 (Draft) would exempt New Hampshire state waters from the requirements under the ALWTRP. Alternative 6 (Preferred) would exempt New Hampshire state waters and buffer waters surrounding certain Maine islands from the minimum number of traps per trawl requirement. These changes, coupled with an increase in regulatory requirements in other areas, might create an incentive for fishermen to relocate their effort to exempted waters. If this were to occur, it would increase stress on the benthic environment in these areas.[18] Any relocation of effort, however, is likely to be limited by other factors, including the already crowded conditions in inshore and nearshore waters and the conflicts between fishermen that could arise if those who attempted to relocate their effort were perceived as encroaching on territory unofficially claimed by others. As a result, any adverse impact on essential fish habitat in exempted waters is likely to be limited. Under Alternatives 1, 2, and 4 the waters would not be exempt, so there would be no additional impacts to essential fish habitat.

5.3.2.2 Buoy Line Requirements

With the exception of Alternative 1 (No Action), all of the regulatory alternatives under consideration would require increasing the number of traps per trawl fished in the Northeast

[18] This change presumably would be offset by a decrease in fishing pressure in other areas, with potentially beneficial implications for benthic habitat in these areas.

region. This increase in trawl length under Alternatives 2 through 6 (Draft and Preferred) may in turn increase the use of sinking groundline. This would not be the case with Alternative 1 and as such there would be no additional impact to benthic habitat as a result of Alternative 1. The use of such line increases the line's contact with the sea floor, creating the potential for adverse impacts on benthic habitat. Such impacts, however, are not expected to be more than minimal or temporary in nature. The expected impacts of sinking groundline on benthic habitat would occur primarily when trawl lines of pots are hauled to the surface. During this process, the line may snag on bottom features and organisms as it is dragged across the bottom. Current knowledge suggests that trap/pot fishermen minimize the distance at which gear is drawn across the sea floor when hauling in their gear, as this contact causes abrasion of the protective coating on the traps themselves. Hence, fishermen position their vessels above their gear, pulling sets up through the water column instead of across the sea floor. This practice minimizes the adverse impact of sinking groundline on benthic habitat. Furthermore, the amount of bottom area that would be disturbed by sinking groundline, and the frequency of disturbance in the exact same area from repeated contact with sinking groundline, would be very small, allowing enough time for recovery of benthic communities that would potentially be affected. Therefore, any adverse impacts associated with the increased use of sinking groundline would be temporary as well as minimal.

In contrast, in an effort to reduce damage to sensitive habitats, single trap/pots are preferable in the Southeast. The Southeast U.S. has many more coastal habitats that include live bottom and corals; in particular, there are ample amounts of live bottom off the coast of Northeast Florida[19]. Traps set in multiple trap trawls can damage live bottom more than single traps. Groundlines may drag across the bottom, potentially shearing off living organisms most important in providing topographic complexity (Barnette 2001). Furthermore, the area swept by the groundline is orders of magnitude greater than the cumulative area of the traps themselves (Barnette 2001). It is estimated that hauling in a single trap results in 30% more damage to the substrate than setting the trap itself (Appledorn et al 2000); thus, hauling in multiple traps would further increase the extent of the habitat than a single pot.

5.3.2.3 Weak Link Requirements

The use of weaker weak links, as required by regulatory Alternatives 2 through 6 (Draft and Preferred), is unlikely to have a significant impact on essential fish habitat. Currently, weak links are also required under Alternative 1. It is possible that weak links could benefit essential fish habitat by reducing the likelihood that an entangled whale would drag gear over sensitive areas. Instead, the weak link is expected to break, releasing the gear. To the extent this occurs, potential damage to the marine environment could be avoided.

[19] See http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html for maps showing the location of live bottom and coral.

5.3.3 Impacts to Directed Catch and Bycatch

Like other regulations on commercial fishing, changes in ALWTRP requirements could have an impact on directed catch and bycatch in affected fisheries. Directed catch refers to the catch of species targeted by the fisheries currently or potentially subject to ALWTRP requirements (see list of affected fisheries in Chapter 4.2). Under the Magnuson-Stevens Fishery Conservation and Management Act, bycatch is defined as the harvest of fish that are not sold or kept for personal use, including economic and regulatory discards.

As described below, potential changes to the ALWTRP are unlikely to have a significant impact on directed catch or bycatch. The discussion is divided into three parts:

- Impacts associated with major gear modification requirements;
- Impacts associated with seasonal closures; and
- Impacts associated with changes to exempted waters.

5.3.3.1 Major Gear Modification Requirements

None of the major gear modification requirements specified under Alternatives 2 through 6 (Draft and Preferred) are likely to have a significant impact on directed catch or bycatch. Alternative 1 does not require additional gear modifications above and beyond what is currently required; therefore, there would be no impacts to directed catch or bycatch as a result of Alternative 1. The NMFS Gear Research Team reports that no significant changes in catch have been observed by or reported to them for any of the gear modifications currently required under the ALWTRP. The gear modification requirements envisioned under Alternatives 2 through 6 (Preferred) primarily involve increasing the number of traps per trawl or codifying current practices (singles in the Southeast). A vessel may experience catch changes but these impacts may diminish over time as fishermen adapt to new gear configurations and learn to fish longer trawls more efficiently. Nonetheless, it is important to recognize that changes in gear configuration could have an overall adverse impact on directed catch or bycatch at first. The magnitude of these impacts is uncertain.

5.3.3.2 Seasonal Closures

It is possible that the seasonal closures proposed in Alternatives 3 through 6 (Draft and Preferred) would experience a reduction in catch. If the vessels chose to suspend fishing then their catch level would be affected during the months of the closure. If the vessels chose to relocate fishing effort outside the closure area, there is the possibility that the catch level could be reduced relative to that in the preferred fishing location inside the closure area. Catch reductions could occur due to numerous reasons including unfamiliarity with the new location, competition, or lower productivity of the grounds. Alternative 1 does not require additional closures above and beyond what is currently required; therefore, there would be no impacts to directed catch or bycatch as a result of Alternative 1.

5.3.3.3 Addition of Exempted and Buffer Waters

Alternatives 1, 2, and 4 do not require changing the current exempted waters; therefore, there would be no impacts to directed catch or bycatch as a result. As discussed above, Alternatives 3, 5, and 6 (Draft and Preferred) would expand the waters that would be exempted from some or all of the ALWTRP requirements with the exception of the gear marking requirements. If vessels relocated their effort to exempted areas to avoid the costs of complying with ALWTRP requirements, more directed catch and bycatch in these waters could occur. As a result of this increased fishing pressure, stocks of both targeted and bycatch species in these waters could be adversely affected.

5.3.4 Summary of Impacts

Alternative 1 (No Action) would not result in additional conservation benefits to other protected species. There are no additional impacts to essential fish habitat and directed catch and bycatch as Alternative 1 maintains the status quo.

As the discussion above suggests, there is no significant difference among Alternatives 2 through 6 (Draft and Preferred) with respect to impacts on other protected species, essential fish habitat, directed catch, or bycatch; in each case, the impact is expected to be minimal. All the Alternatives (with the exception of Alternative 1) include some form of gear modifications and some level of increased traps per trawl. The main differences among these alternatives stem from differences in the extent to which they would close certain areas to fishing during certain times of the year. Other protected species would indirectly benefit from the measures put in place to protect the species covered under the ALWTRP.

With the exception of Alternatives 1, 2, and 4, the regulatory alternatives under consideration would expand the area of coastal waters that would be exempted from ALWTRP requirements. This change would relieve previously regulated vessels from ALWTRP requirements, and thus could have an adverse impact on other protected species relative to the status quo. The practical impact of the potential change in exempted waters is unclear, since data on the number of vessels that currently fish in exempted waters are unavailable. Expansion of exempted waters in certain areas (e.g., New Hampshire) could affect a relatively small number of vessels; however, the impact on other protected species would depend upon the gear modifications that such vessels have already implemented but would no longer be required to maintain. If these vessels have relied primarily upon weak links to comply with ALWTRP requirements – as seems likely – the impact of removing these requirements is likely to be negligible. Conversely, if these vessels have met ALWTRP standards by switching to sinking groundline, the impact of exempting them from these standards could be greater.[20]

[20] The discussion above focuses on the impacts of expanding exempted waters assuming that a significant number of fishermen might choose to fish exclusively within those waters, and thus avoid the need to comply with ALWTRP requirements. It is possible that fishermen would choose to modify their gear to comply with ALWTRP requirements in non-exempt waters and would use the same gear in exempt areas. To the extent this occurred, the potential for any adverse impact on other protected species would be reduced.

For the most part, impacts on other protected species, essential fish habitat, directed catch, or bycatch as a result of the proposed measures are expected to be minimal or be seasonal as is the case with the proposed closures.

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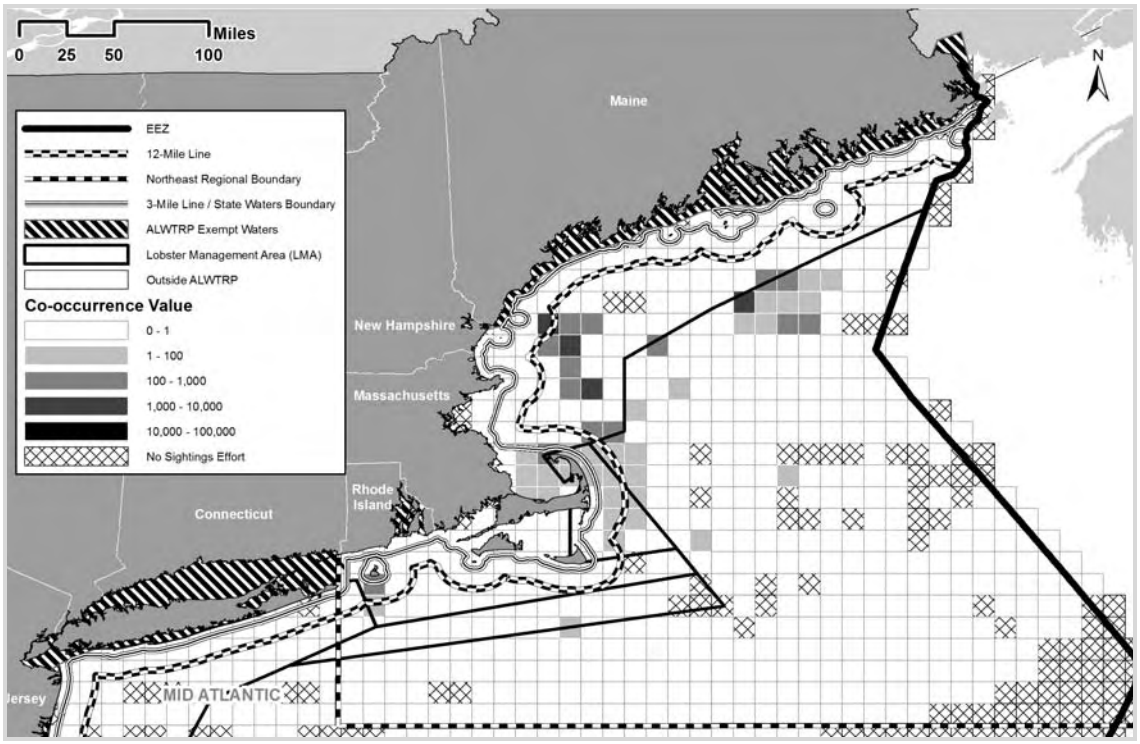
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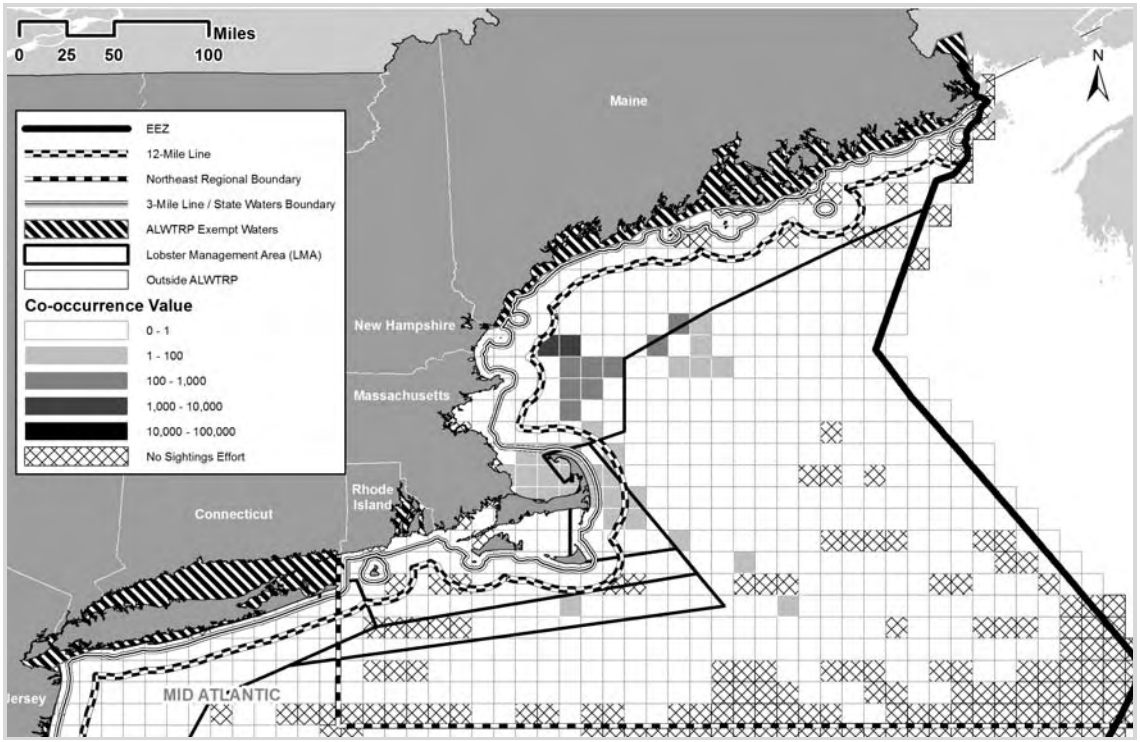
Appendix 5-A

CO-OCCURRENCE OF VERTICAL LINES AND RIGHT/HUMPBACK WHALE SPUE BASELINE MONTHLY VALUES

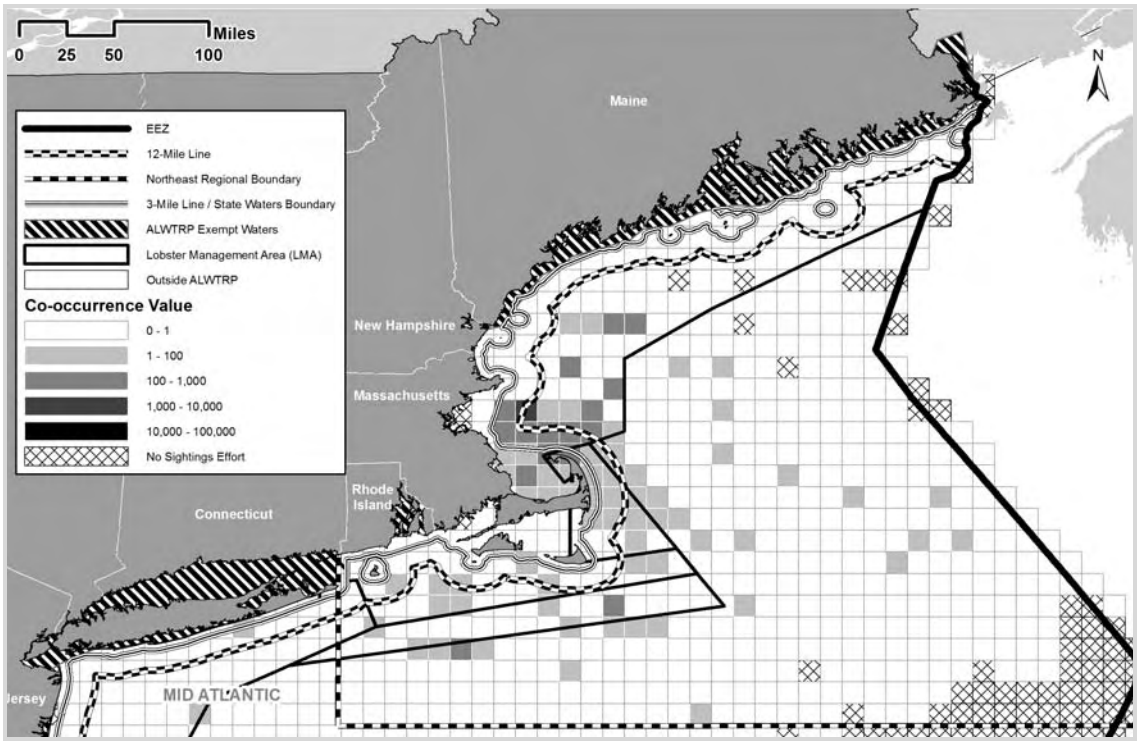
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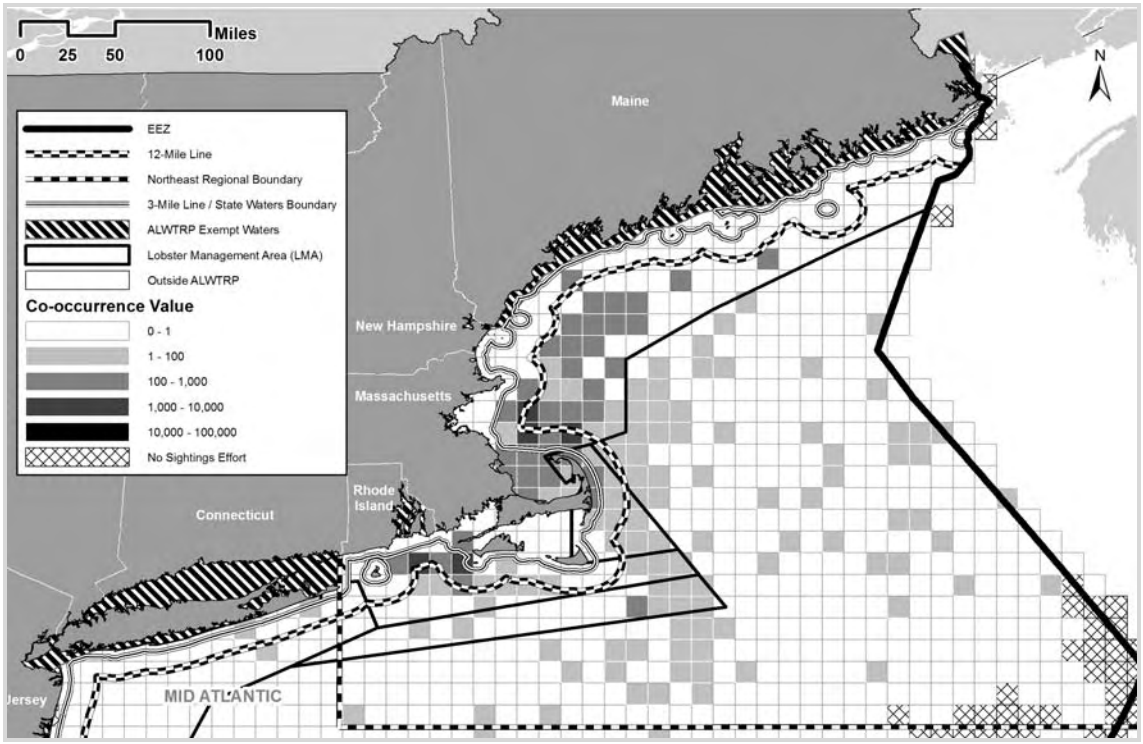
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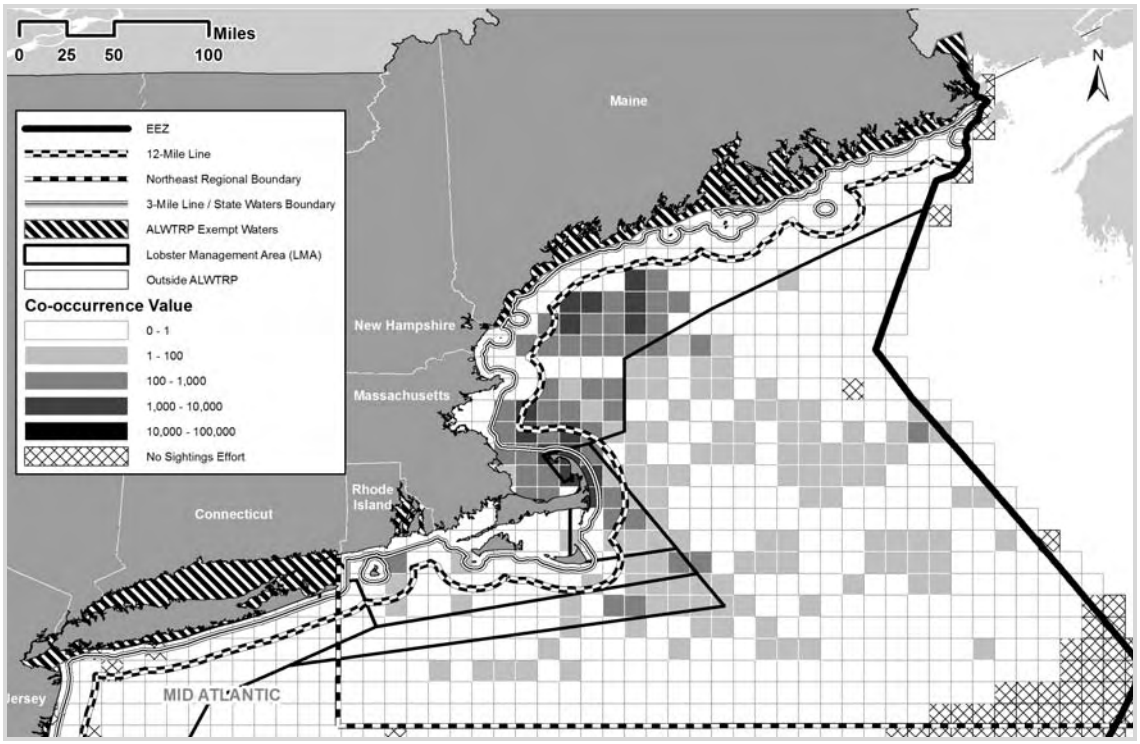
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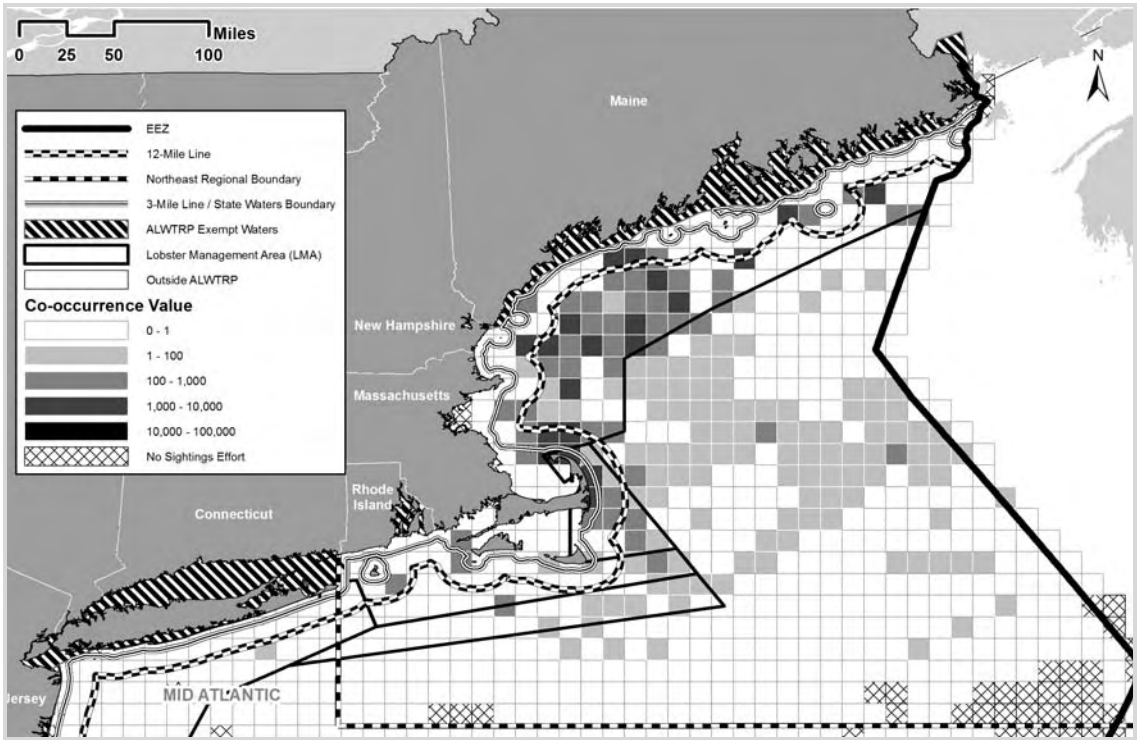
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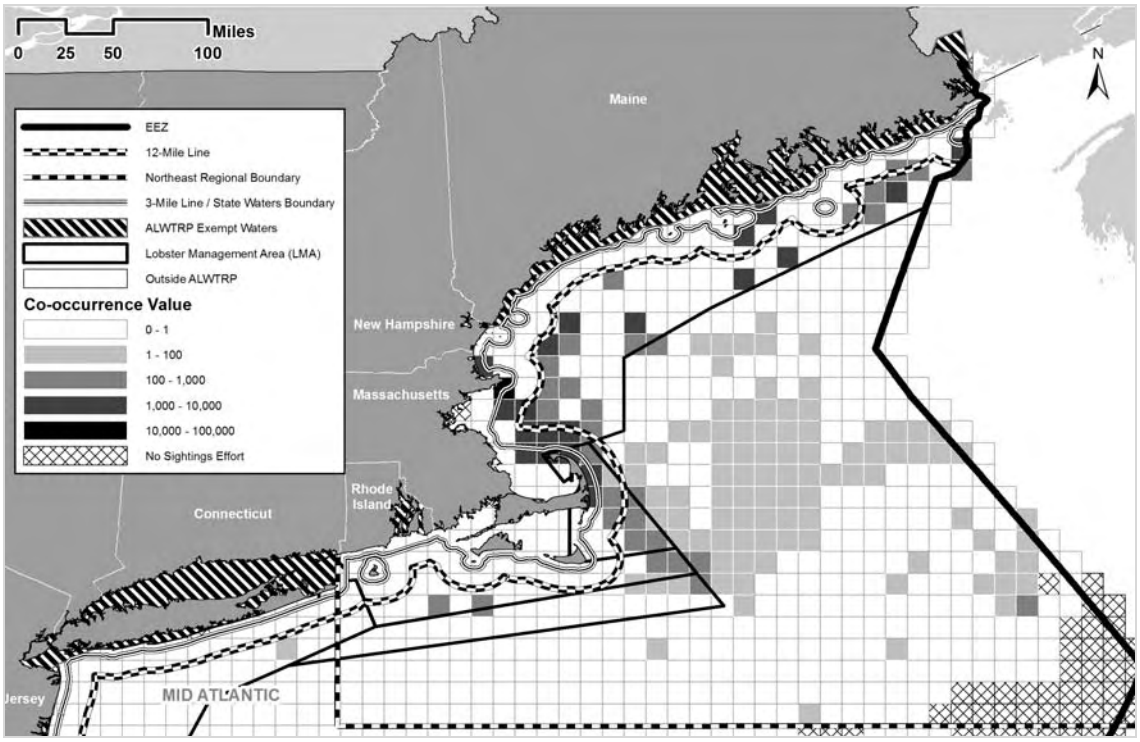
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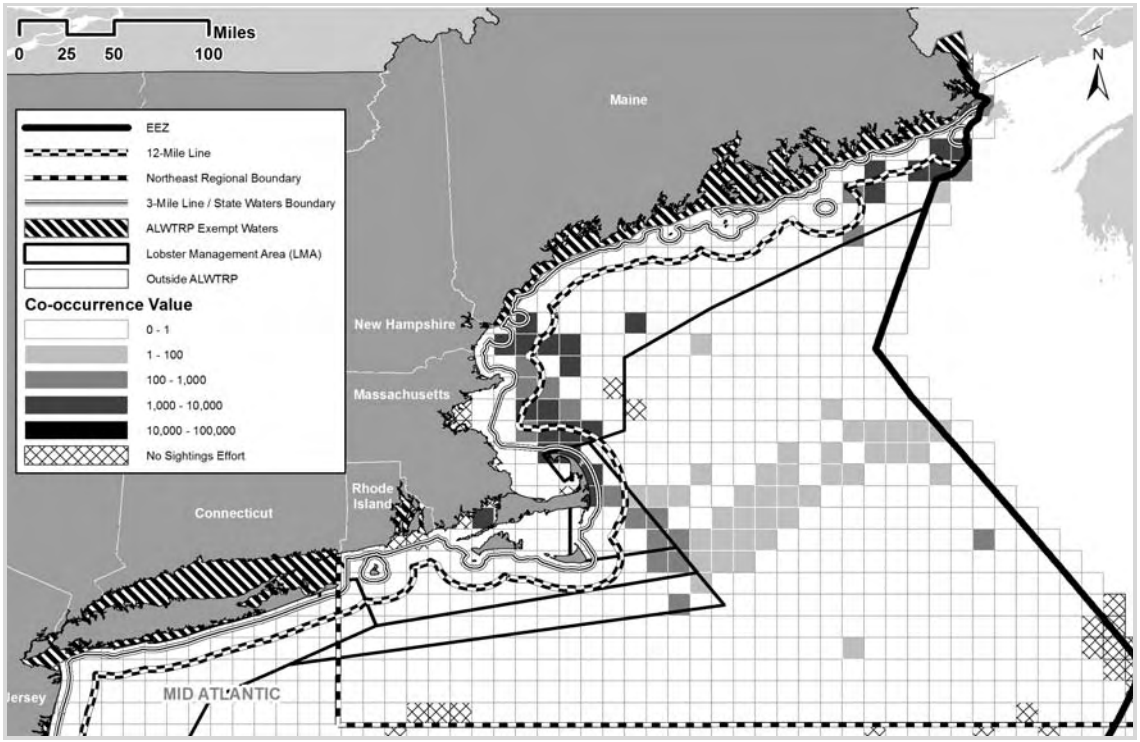
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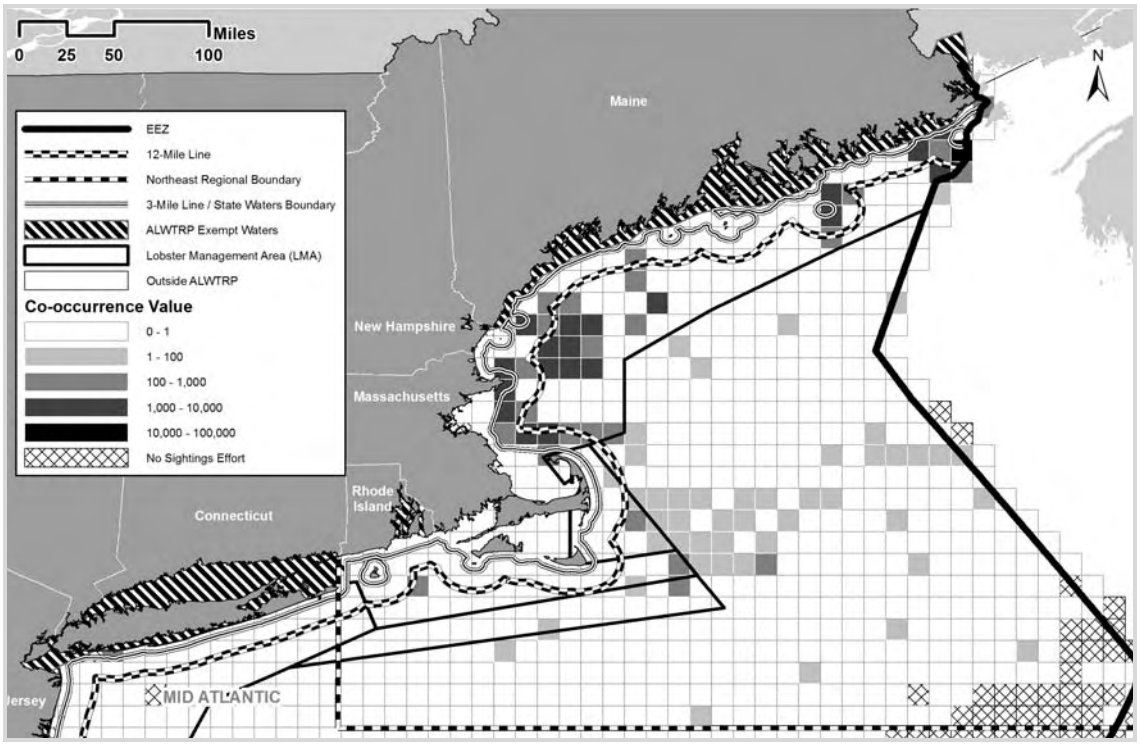
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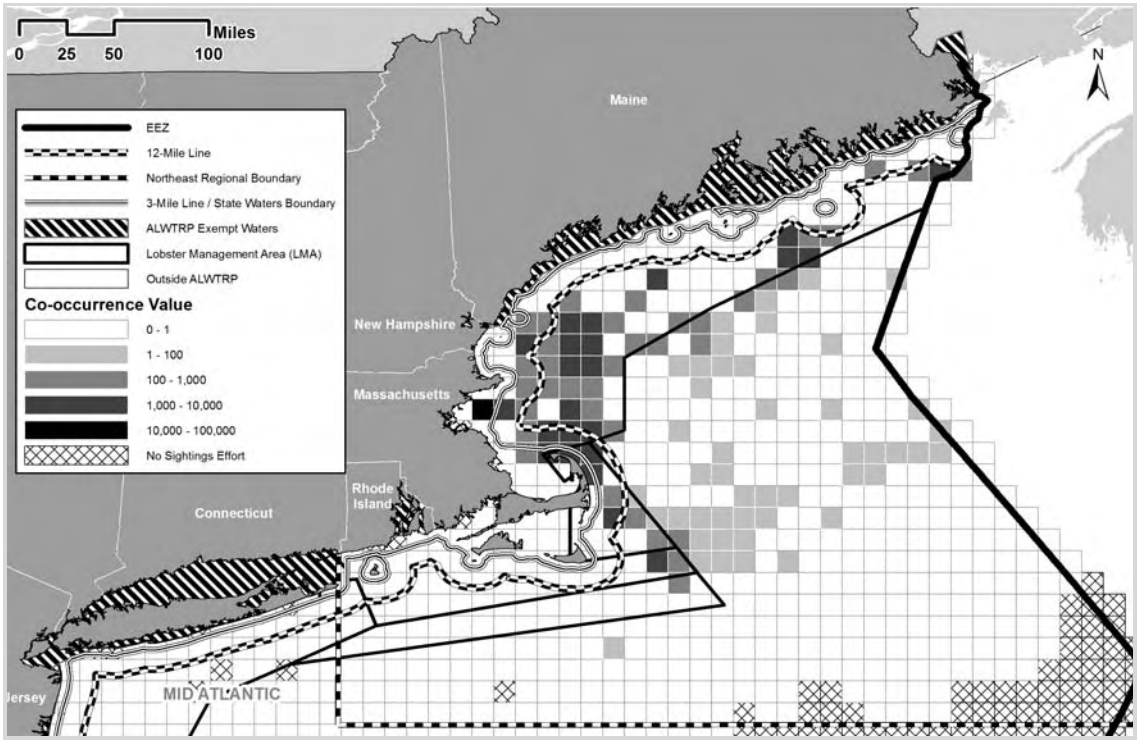
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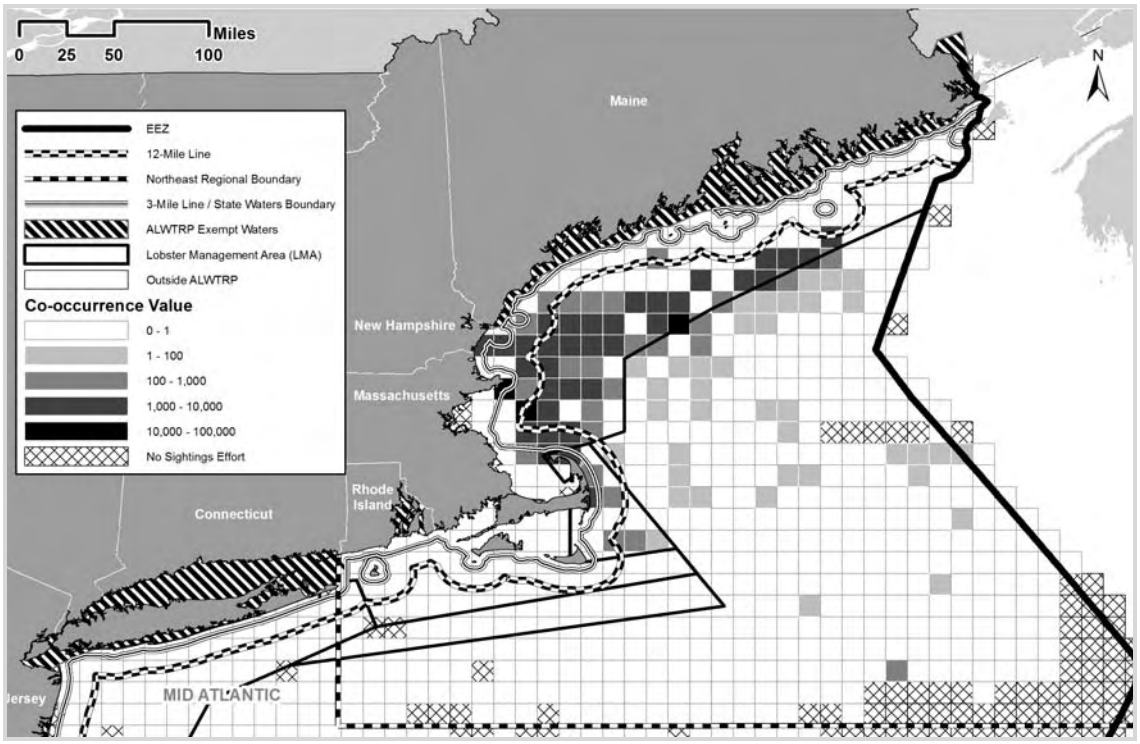
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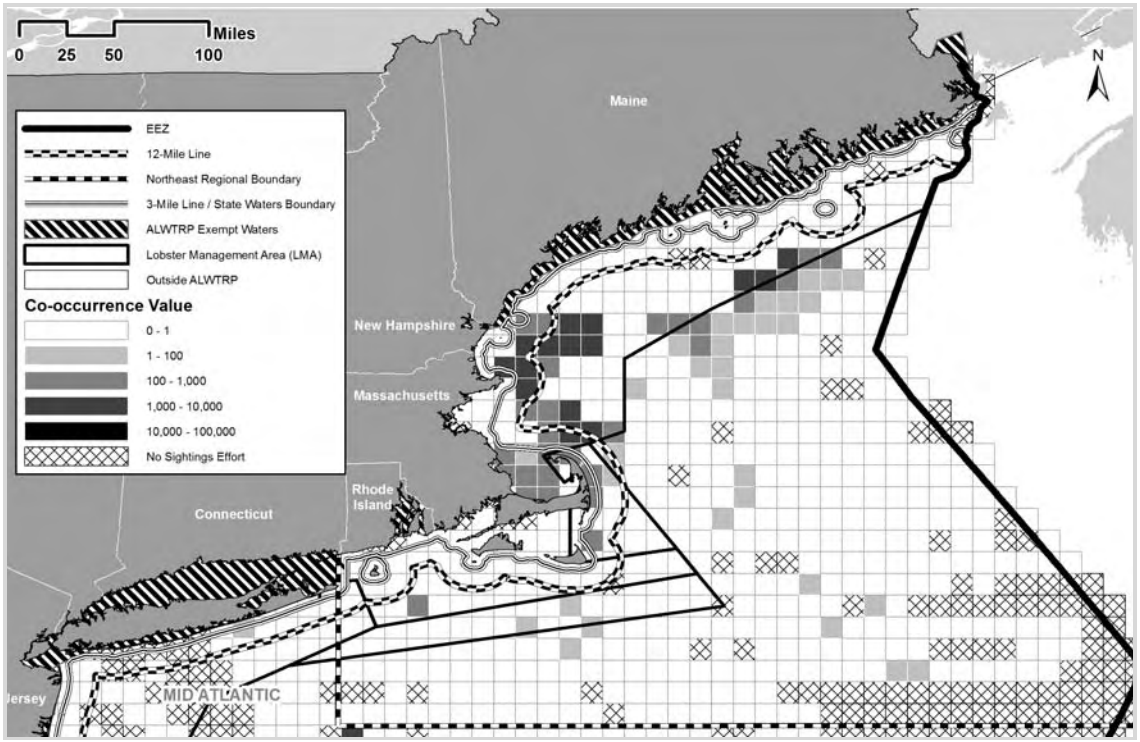
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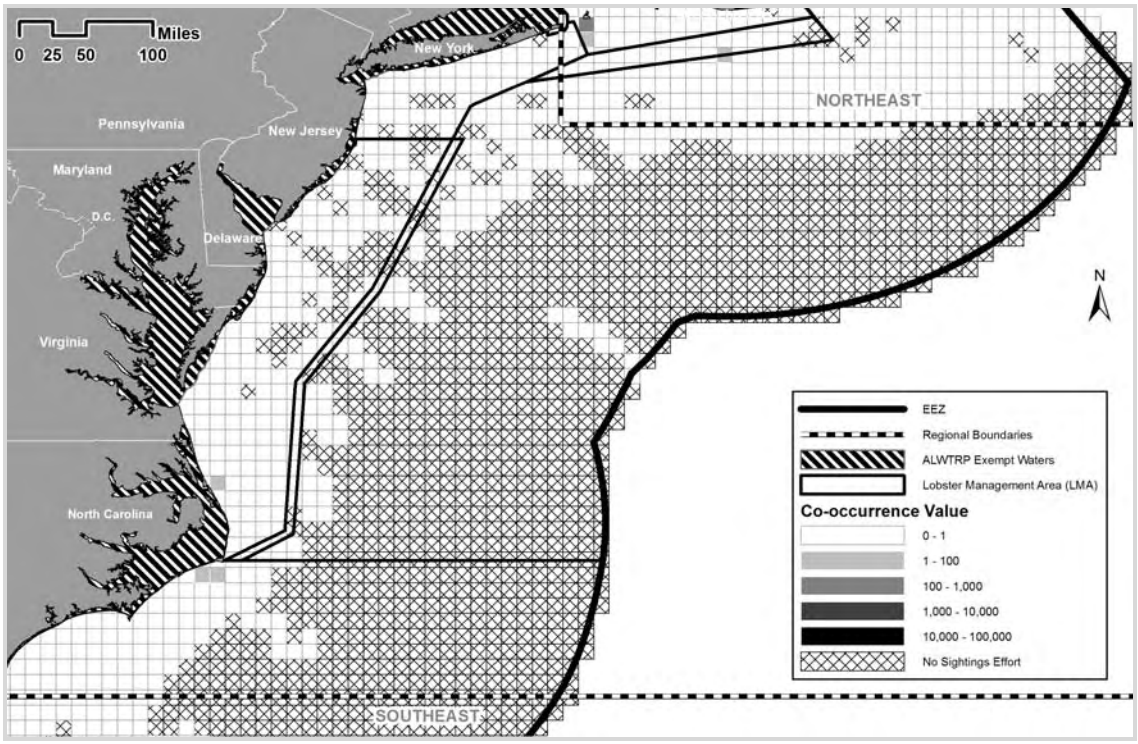
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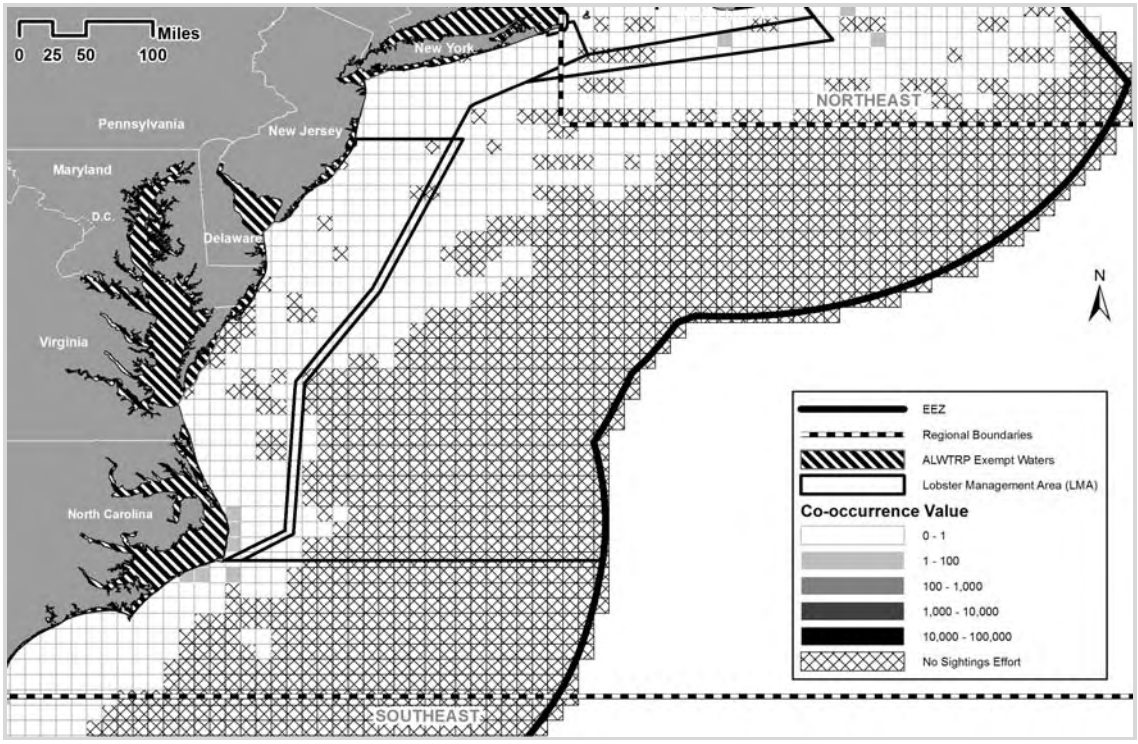
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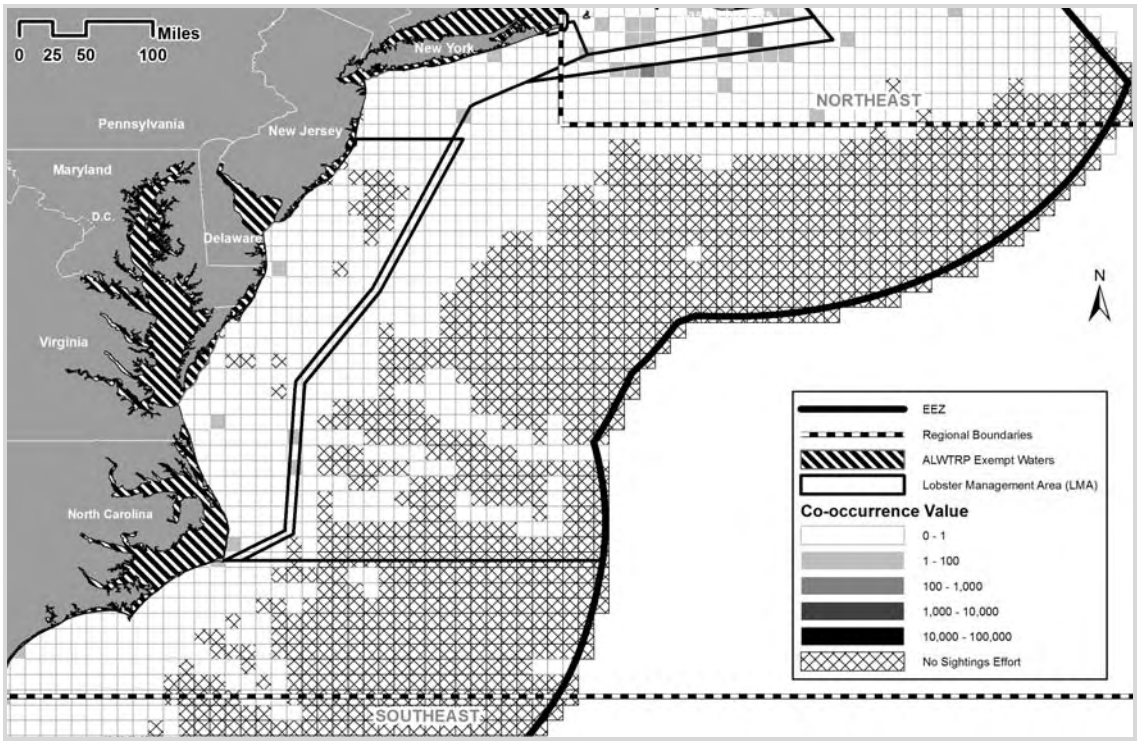
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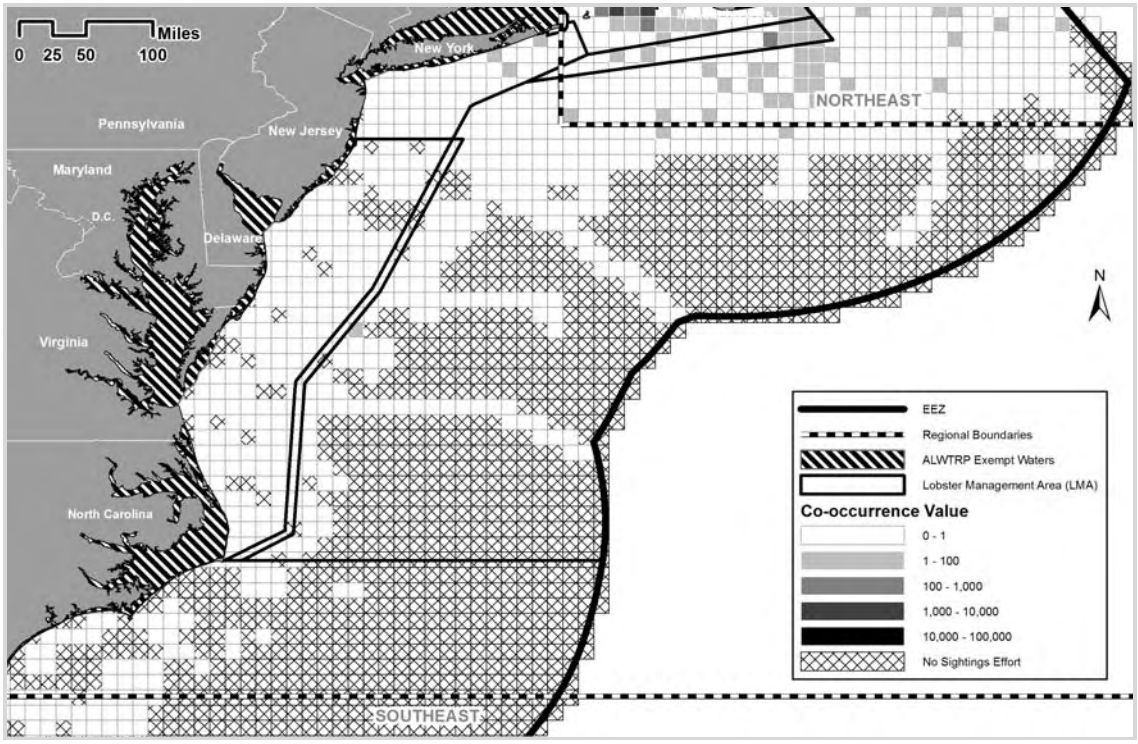
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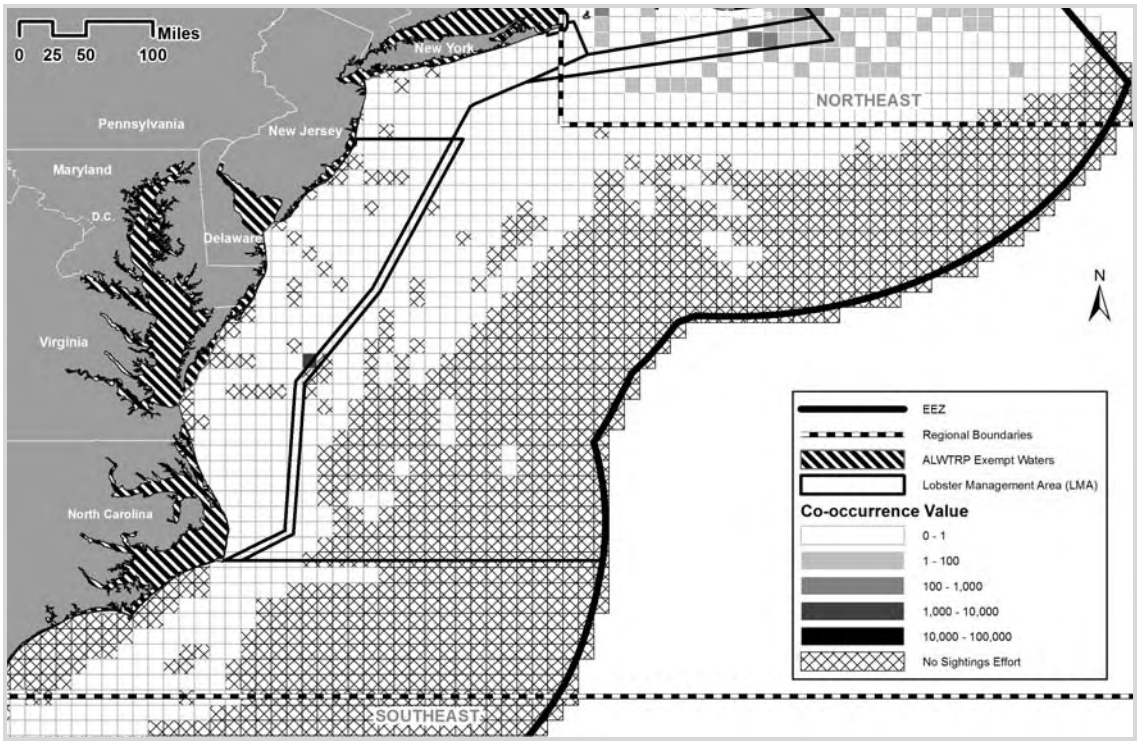
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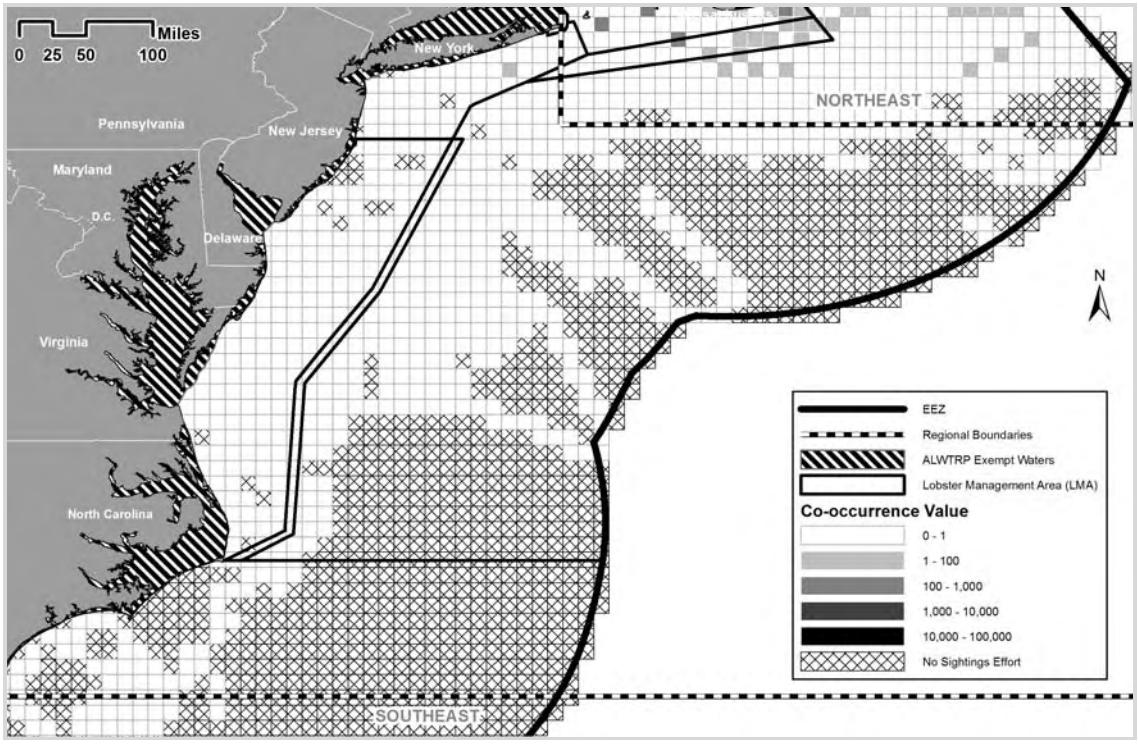
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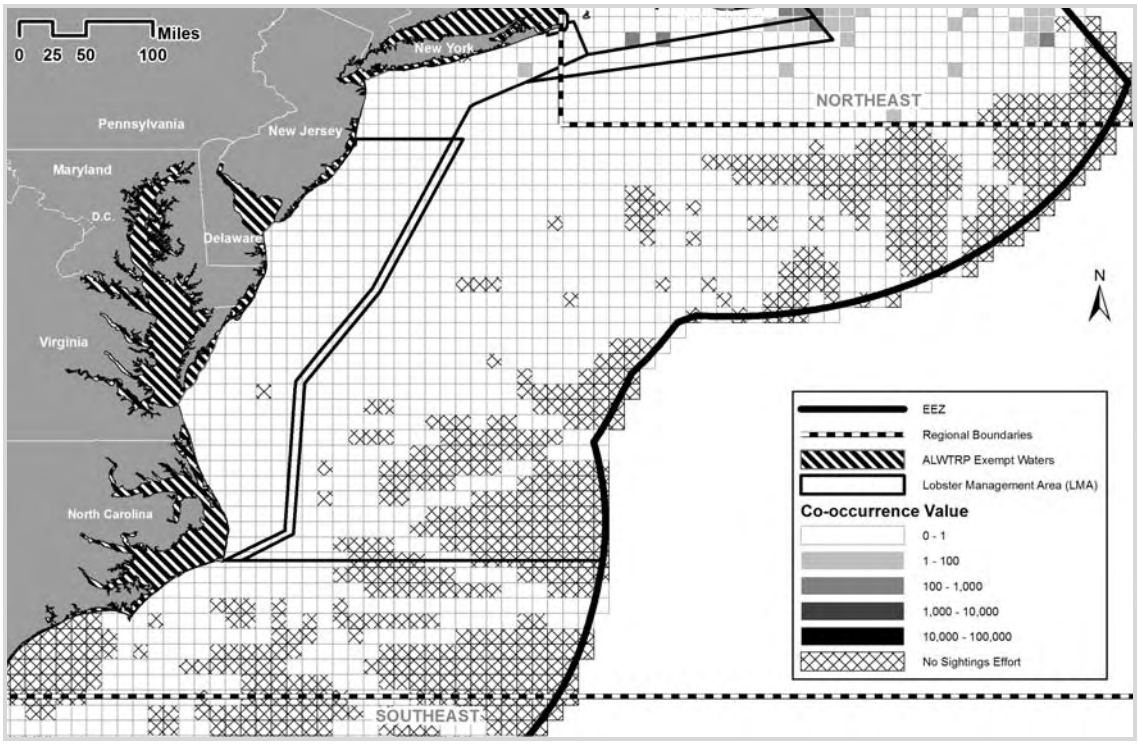
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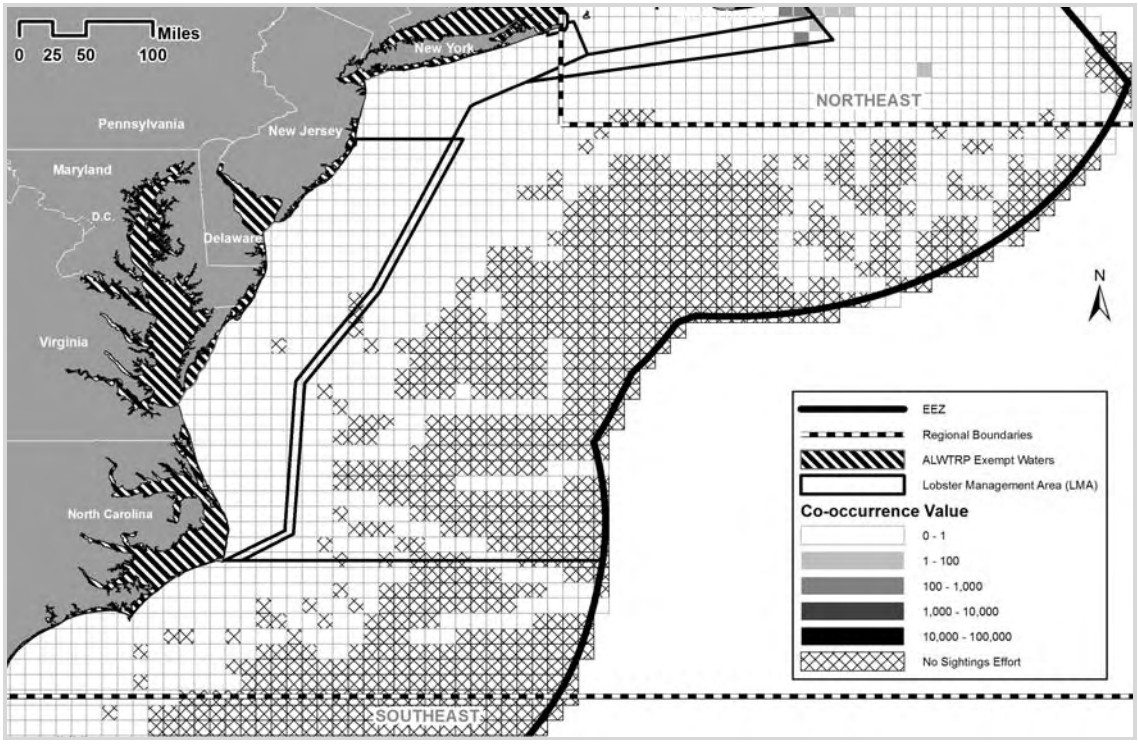
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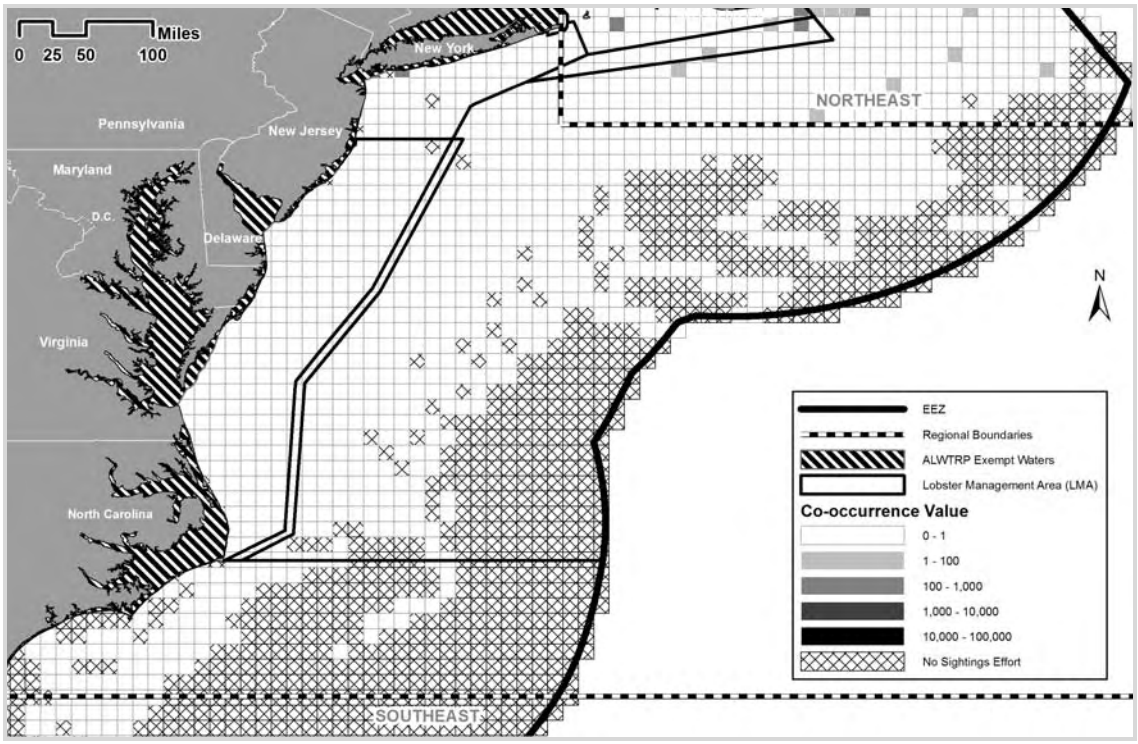
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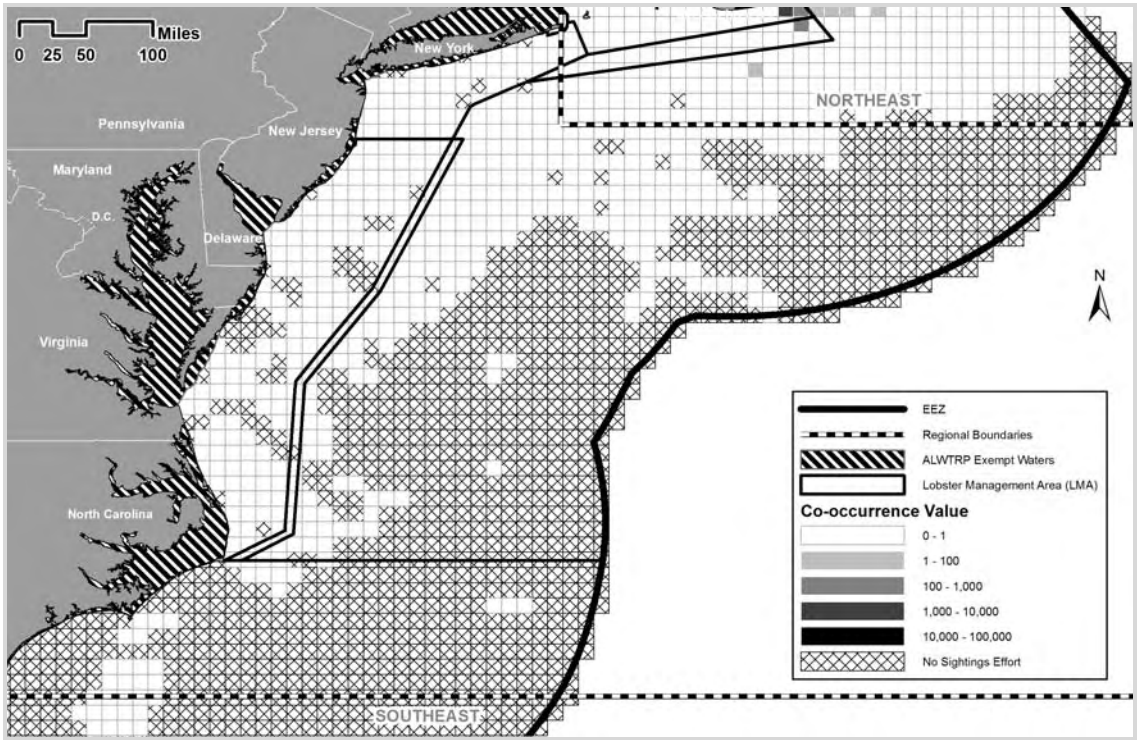
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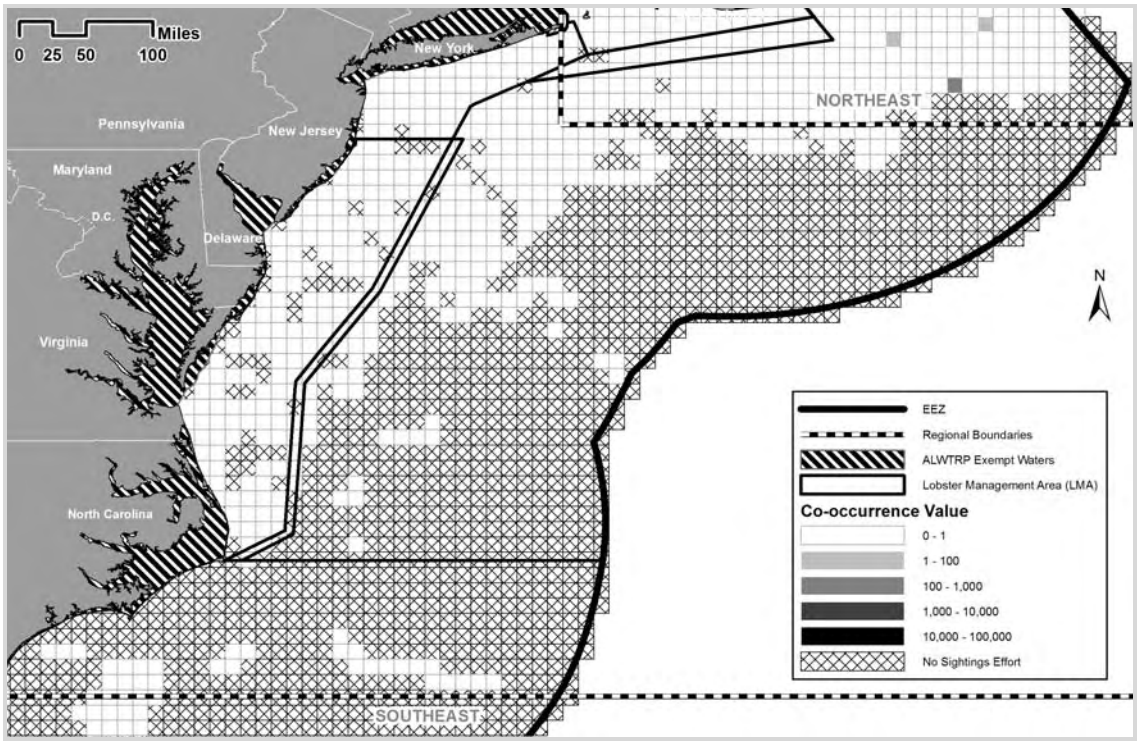
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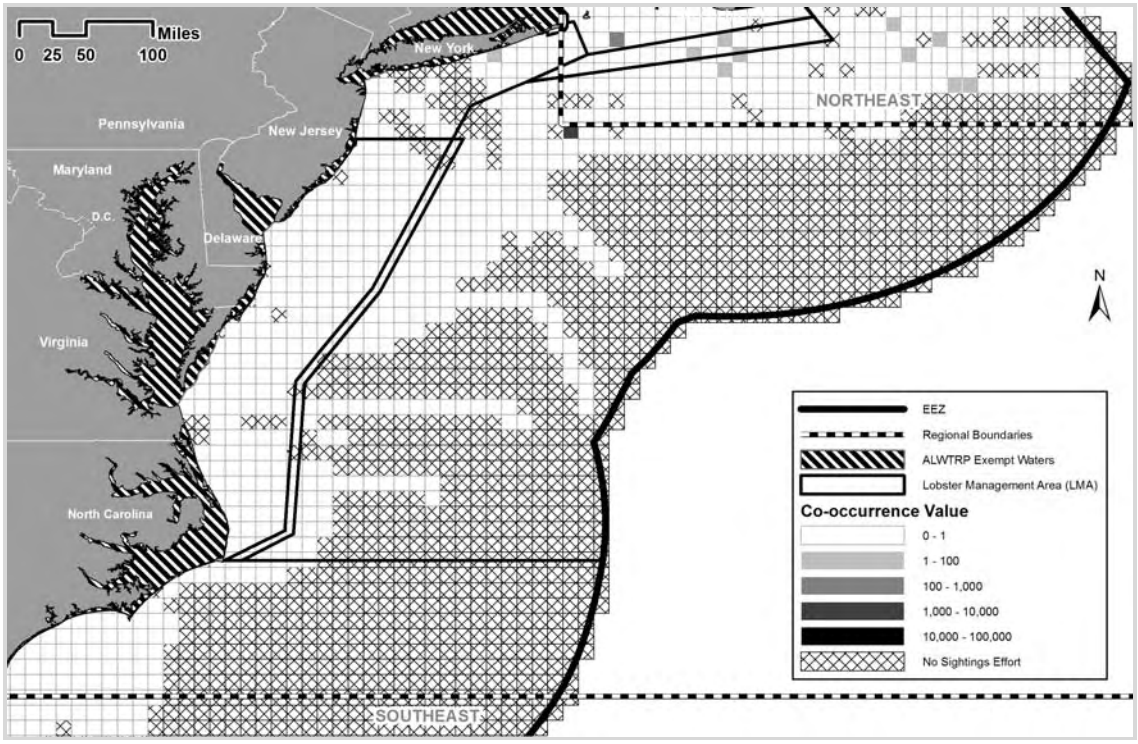
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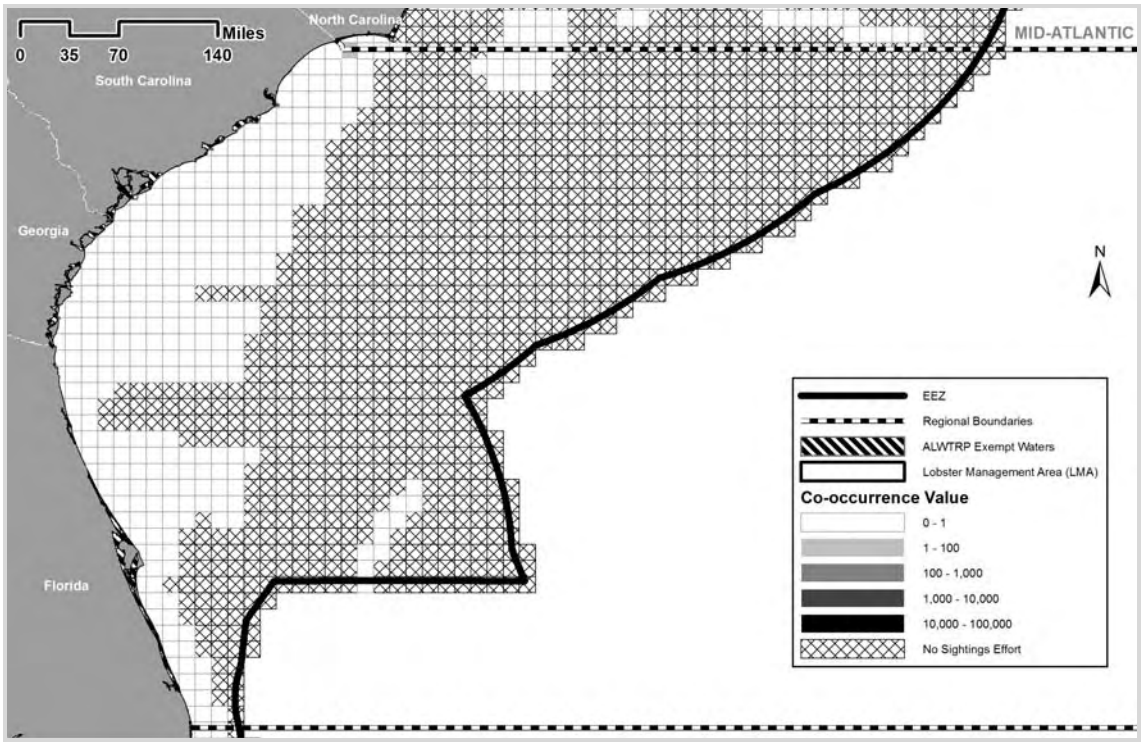
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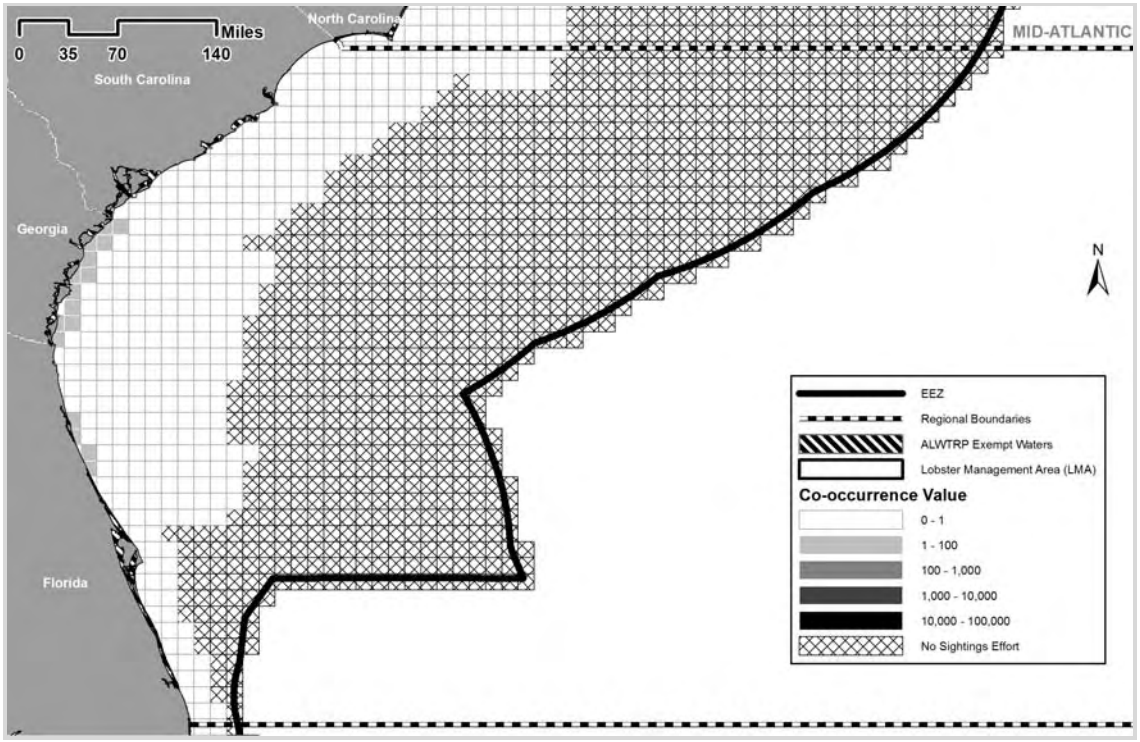
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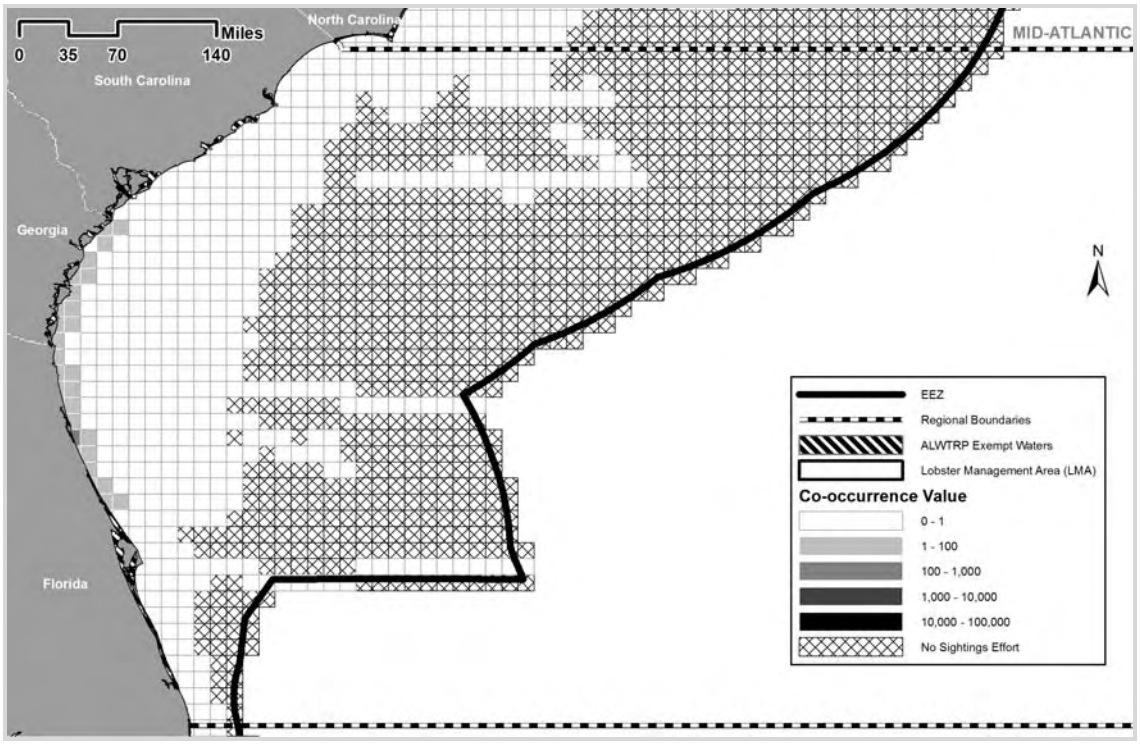
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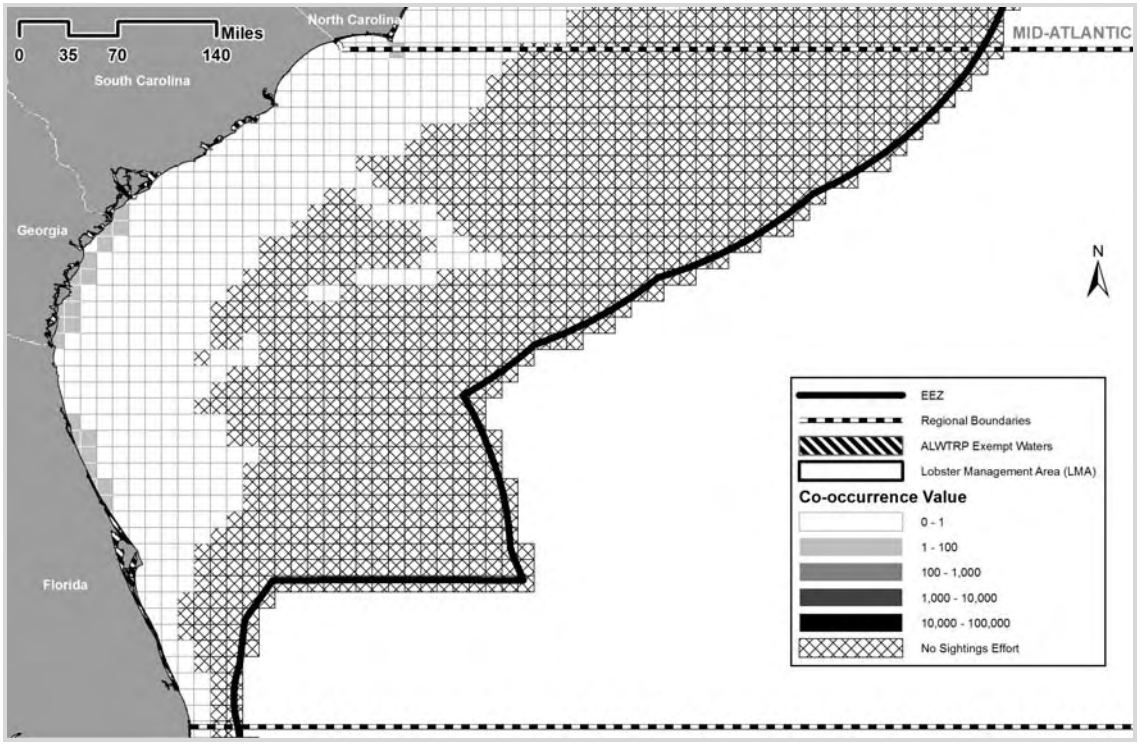
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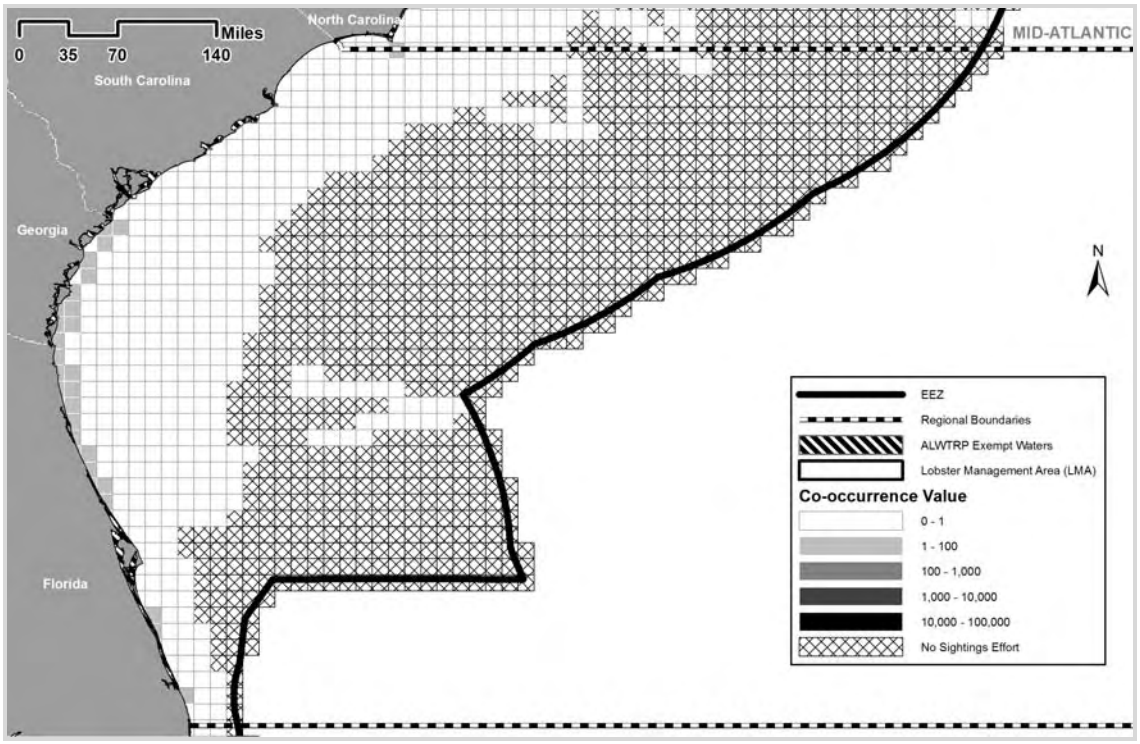
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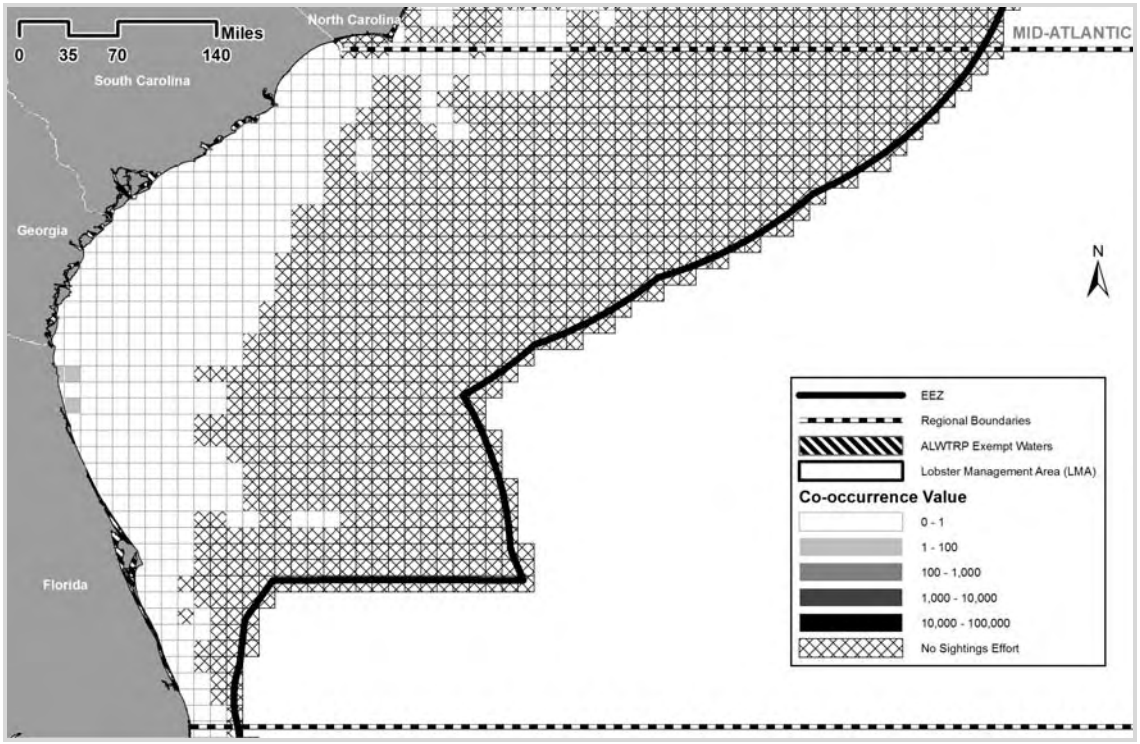
Southeast–February



Southeast– March



Southeast–April



Appendix 5-B

SENSITIVITY OF THE CO-OCCURRENCE ANALYSIS TO THE USE OF ADJUSTED WHALE SIGHTINGS VALUES

INTRODUCTION

The analysis presented in Chapter 5 develops co-occurrence scores by relying upon data on sightings of right and humpback whales per unit of survey effort (SPUE). The use of effort-corrected sightings data is necessary to characterize the likely distribution of whales within the waters that are subject to the ALWTRP. The dataset, however, is not comprehensive, adding uncertainty to the analysis of both baseline co-occurrence scores and the impact of alternative management measures. This uncertainty is related to two specific issues:

1. Inclusion of SPUE values of "0" that are based on very low levels of survey effort; and

2. The absence of SPUE values (and therefore, co-occurrence values) in areas where effort-adjusted survey data are unavailable.

Members of the Atlantic Large Whale Take Reduction Team (ALWTRT) have expressed concern about these issues and suggested a variety of methods to address them, including a detailed proposal submitted by Dr. Robert Kenney.[1] Dr. Kenney's proposal focuses on the use of opportunistic sightings data to redefine SPUE values of zero when those values are based on relatively little survey effort. NMFS has developed a modified version of this approach, extended it to address both of the issues noted above, and employed the approach to investigate how the use of adjusted sightings data would influence evaluation of the potential impact of vertical line management measures. This appendix describes the steps employed to develop adjusted sightings values and presents the results of the analysis.

ANALYTIC BOUNDARIES AND PARAMETERS

The approach described in this appendix has been applied to a limited geographic area and at a particular spatial resolution. These parameters are described below.

Geographic Extent of Application

The adjustment of sightings values has been limited to waters within the ALWTRP's Northeast region. In addition, Narragansett Bay has been excluded from the analysis, based on the understanding that this area is unlikely to comprise important habitat for right or humpback whales.[2] SPUE-based scores assigned to cells within Narragansett Bay are left unchanged regardless of whether the value is zero or undefined.

Resolution of Analysis

The approach employed to develop adjusted sightings values is consistent with the general design of the Vertical Line Model. Specifically:

[1] Robert D. Kenney, Ph.D., University of Rhode Island Graduate School of Oceanography, "Estimating Minimum SPUE Values for Right and Humpback Whales in Northeast Areas with Low Survey Effort: An Analysis Completed for the Atlantic Large Whale Take Reduction Team," January 31, 2012.

[2] Email communication with Dr. Robert Kenney, University of Rhode Island, July 27, 2012.

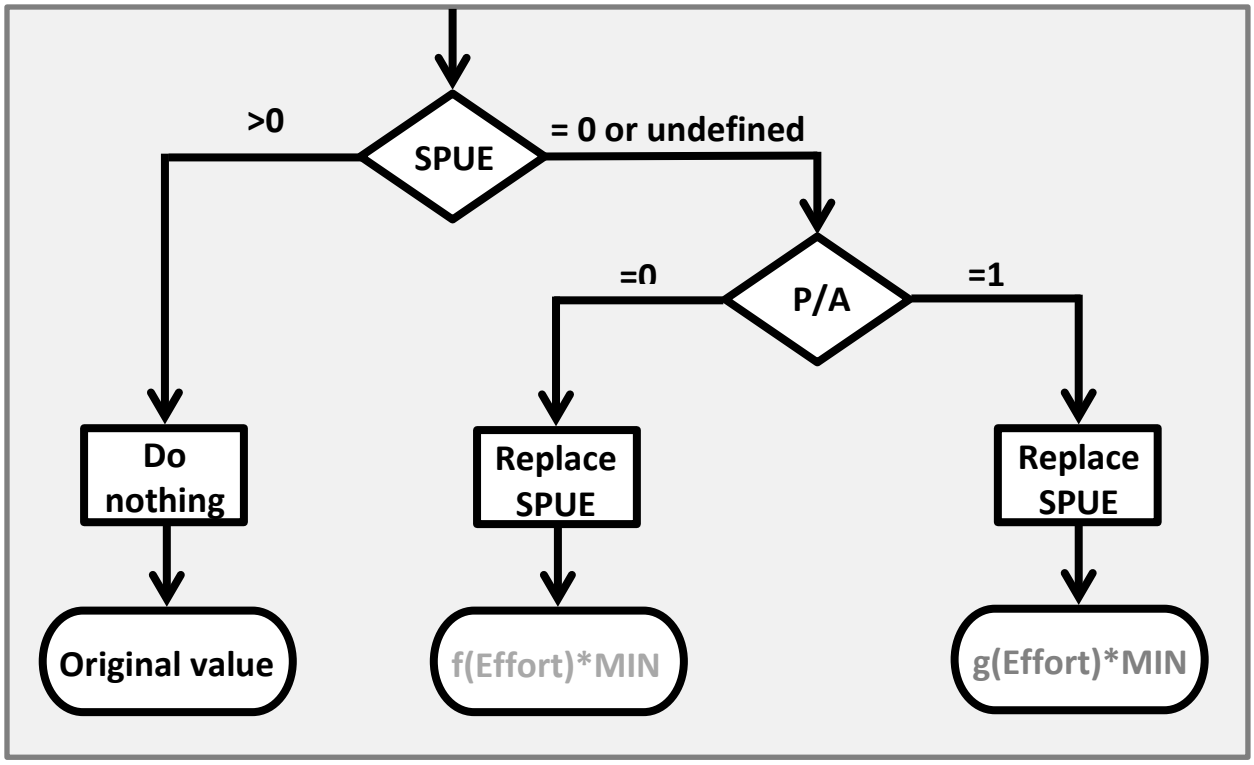
- Adjusted sightings values are developed for each month, based on multiple years of opportunistic sightings data;
- Adjusted values are developed and assigned at the same spatial resolution as SPUE scores (i.e., 10-minute by 10-minute grid cells);
- Adjusted sightings values are independently developed for both right and humpback whales.[3]

ADJUSTED SIGHTINGS VALUES FOR AREAS WITH LIMITED SURVEY EFFORT

The approach employed to redefine sightings values in cells with limited or no survey effort mirrors closely the approach described in Dr. Kenney's January 2012 proposal, with some minor revisions. The steps of the analysis are described below, as well as the justification for the approach selected for each step. Exhibit 5B-1 presents a flow chart that summarizes these steps.

Exhibit 5B-1

OVERVIEW OF ANALYTIC APPROACH



[3] The adjusted sightings value for the two species combined is the sum of the adjusted values assigned to the individual species.

Step 1. Isolate Zero And Undefined Values

In the first step of the analysis, records for which the SPUE value is greater than zero (in which case the original value will be retained) are separated from records for which the value is zero or undefined (in which case the value will be retained or redefined based on the steps described below). This is not to say that a value greater than zero is inherently more reliable than a zero value that is based on the same level of survey effort. Rather, the approach is based on the premise that the ultimate goal of the exercise is to redefine some reasonable, minimal SPUE value for areas and months in which the reported SPUE value is zero or undefined, but there is reason to believe that this value is not representative of the likely distribution of whales. Retaining a zero or undefined value in these instances could cause the model to understate potential co-occurrence.

Step 2. Apply Presence/Absence Indicator

Opportunistic sightings data provide additional evidence of the potential for whales to be present in areas where systematic surveys have not identified them. Available opportunistic data are used in conjunction with data on survey effort to determine an adjusted sightings value.

Preparation and Sources

Data identifying opportunistic sightings of right and humpback whales were retrieved from the North Atlantic Right Whale Consortium (NARWC) Sightings and Survey Database.[4] Each record specifies the date of the sighting, the species sighted, the location (i.e., latitude and longitude), and the certainty of the identification. The records date from the 1800s but are extremely sparse until 1966.

Opportunistic data are used to assign a "Presence/Absence" (P/A) score to each cell by month and species. For a given month and species, if an acceptable record identifies a whale sighting, a P/A score of "1" is assigned. If the available records indicate no sightings, a P/A score of "0" is assigned. For this analysis:

- Only available records from 1966 or later are used; and
- Only records that designate the reliability of the sighting as "sure," "probable," or "not recorded" are retained; records of "possible" sightings are omitted.[5]

[4] The NARWC data and User Guide are available at http://gsosun1.gso.uri.edu/~rkenney/DATABASE/.

[5] Retaining records for which the reliability of the sighting was not recorded expands the dataset to include the use of NMFS aerial survey records.

Application

The remainder of the analysis applies different treatments to those areas (i.e., cells) in which the opportunistic data confirm that whales have been observed, as opposed to those where no sightings have been documented. Thus, in this step, those cells with a P/A score of "1" are separated from those with a P/A score of "0." Due to known biases associated with the opportunistic sightings data, NMFS believes it would be inappropriate to apply any greater degree of significance to them than as a simple indicator of the documented presence of whales.

Step 3. Define Minimum SPUE Values

Adjusted sightings scores are based on two factors: an assumed minimum SPUE value (MIN SPUE) that is based on reported non-zero SPUE values for a particular species, as defined in this step, and a multiplier that will be defined in Step 4. There are numerous options for defining a minimum value to be applied to each species, including:

- Use of the annual minimum (non-zero) SPUE value reported for the species in Northeast waters;
- Use of monthly minimum values;
- Use of seasonal minimum values; or
- Other permutations.

For purposes of this analysis, NMFS employs a hybrid approach that adjusts for potentially significant variations in seasonal minimum values. Specifically:

- For right whales, the analysis employs the spring minimum value for the spring and the annual minimum value for the winter, summer, and fall;[6]
- For humpback whales, the analysis employs the winter minimum value for the winter and the spring minimum value for the spring, summer and fall.[7]

These minima are shown in Exhibit 5B-2.

[6] For this analysis, as in the Vertical Line Model, the seasons are defined as follows: Winter, January-March; Spring, April-June; Summer, July-September; Fall, October-December.

[7] This approach is consistent with Dr. Kenney's recommendation in an email dated 7/27/2012.

Exhibit 5B-2

NORTHEAST SPUE MINIMA BY SPECIES

	Minimum SPUE Values Reported		Minimum SPUE Values Employed in Analysis	
	Right	**Humpback**	**Right**	**Humpback**
Winter	0.24	0.12	0.24	0.12
Spring	0.73	0.23	0.73	0.23
Summer	0.28	1.40	0.24	0.23
Fall	3.11	1.65	0.24	0.23

Step 4. Apply Functions To Determine Adjusted Sightings Multiplier

In the final step of the process, a multiplier is applied to the minimum values specified above (MIN SPUE) to calculate the final adjusted sightings value. As Exhibit 5B-3 illustrates, the magnitude of the multiplier is a function of the P/A score and the survey effort in the cell. When the P/A score for a species is "0" (i.e., when the opportunistic data indicate no sightings of the species within the month and area of interest), the multiplier applied is defined by function f; when the P/A score for a species is "1" (i.e., when the opportunistic data indicate at least one sighting of the species within the month and area of interest), the multiplier applied is defined by function g. In each case, the maximum and minimum multipliers are determined by the P/A score. Specifically:

- When P/A = 0, the maximum multiplier applied to MIN SPUE is 0.5; the minimum multiplier is 0.

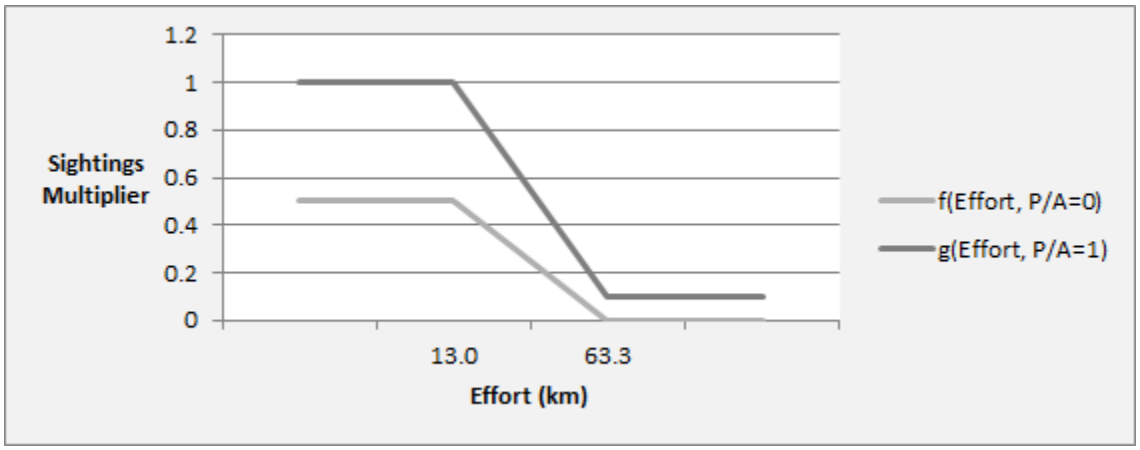
- When P/A = 1; the maximum multiplier applied to MIN SPUE is 1; the minimum multiplier is 0.1.

In both cases, the maximum multiplier is applied whenever the survey effort for the area and month in question is less than 13 kilometers, a distance that in the Northeast corresponds roughly to one latitudinal transit of a 10-minute grid cell. Conversely, the minimum multiplier is applied whenever the survey effort for the area and month in question is greater than or equal to 63.3 km, which is the median level of survey effort per cell in the Northeast across all months. When the survey effort for the area and month in question is between these two values, the multiplier applied to MIN SPUE is defined by function f when P/A = 0, and function g when P/A = 1.[8] The underlying assumption is that the greater the survey effort associated with a reported SPUE value of zero, the greater the likelihood that the reported value is representative of the actual distribution of the species (i.e., the greater the likelihood that the "true" value is zero or very close to zero). This is particularly the case when no opportunistic sightings have been reported.

[8] Expressed in slope-intercept form, these equations are approximately: f(Effort, P/A=0) = -0.01*Effort + 0.63 and g(Effort, P/A=1) = -0.018*Effort + 1.234.

Exhibit 5B-3

FUNCTIONS EMPLOYED IN DEVELOPING ADJUSTED SIGHTINGS VALUES



EFFECT ON SIGHTINGS AND CO-OCCURRENCE SCORES

The full results of the analysis are presented in the attachments that follow. Attachment 5B-1 shows the impact of the analysis on the combined sightings score for right whales and humpback whales in Northeast waters, while Attachment 5B-2 shows the corresponding impact on baseline co-occurrence scores. As intended, the analysis increases sightings scores in areas and months that have been the subject of little or no systematic survey effort. The overall effect is to eliminate all undefined cells, with the exception of those within Narragansett Bay, and to retain zero values only in cells where (1) whales have not been sighted after substantial survey effort and (2) opportunistic sightings have not been recorded. All other cells that had undefined or zero SPUE values have been replaced with minimum values that vary based on the extent of survey effort within the cell and whether records of opportunistic sightings exist. This in turn increases co-occurrence scores in areas where vertical line is present. This is particularly noticeable in areas of Maine state waters landward of the ALWTRP exemption line, where there is a relatively high concentration of vertical line.

Attachment 5B-3 summarizes the impact of the adjusted sightings values on the evaluation of the regulatory alternatives that NMFS is considering. The attachment includes three tables, all of which show (a) the impact of each alternative on co-occurrence in waters that are subject to the ALWTRP *seaward of the exemption line for the sinking groundline requirement*; and (b) the impact of each alternative on co-occurrence in all waters subject to the ALWTRP, *including those that are exempt from the sinking groundline requirements*. As the tables indicate, the use of adjusted sightings values tempers the impact of each management measure on the co-occurrence score. The effect is relatively minor when exempt waters are excluded from the analysis. In this case, the use of adjusted sightings values reduces the estimated impact of each measure on the annual co-occurrence score by no more than 0.3

percent. The impact is greater, however, when exempt waters are included in the analysis, with the net effect, on an annual basis, ranging between 1.6 and 1.9 percent (see Table 5B-3).

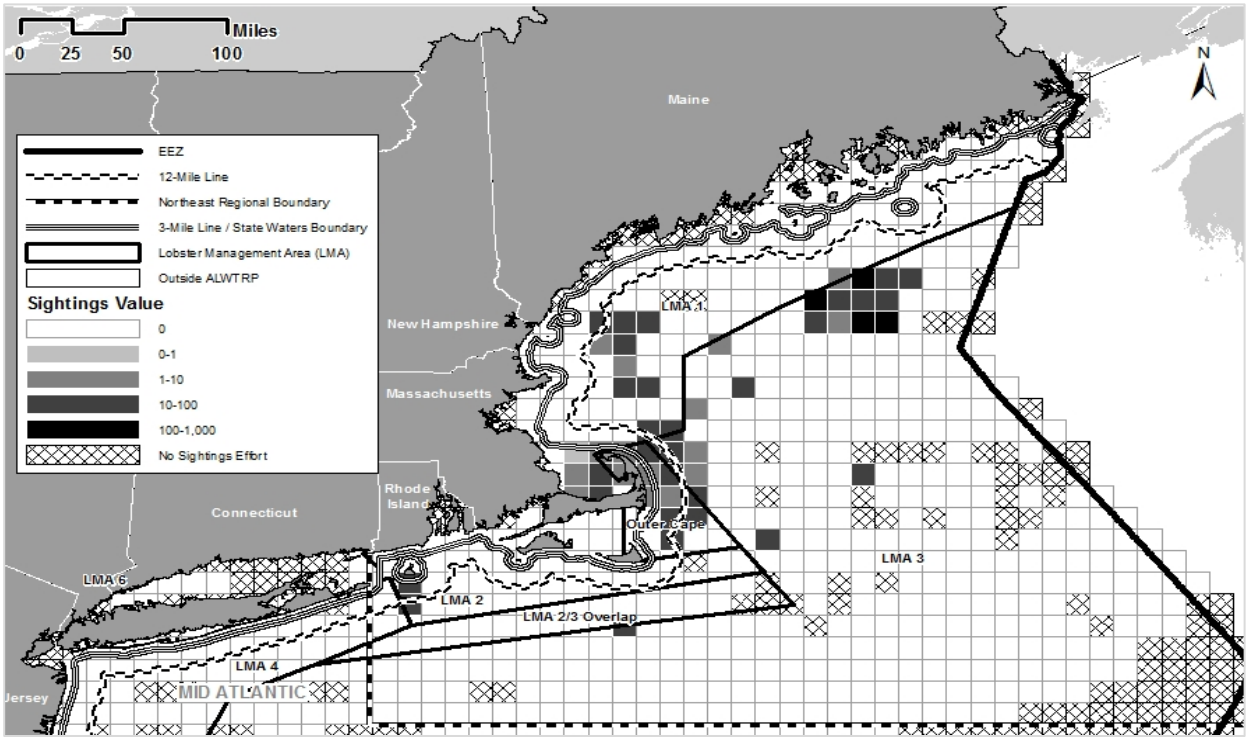
As the tables indicate, the use of adjusted sightings values has a similar impact on the estimated effectiveness of Alternatives 2 through 6. As a result, the use of these values rather than the SPUE values employed in the main analysis has no effect on the relative ranking of the alternatives with respect to their impact on co-occurrence. Under all cases considered, Alternative 5 has the greatest estimated impact on co-occurrence, followed in order by Alternative 4, Alternative 6 (Draft) and Alternative 6 (Preferred), Alternative 3, and Alternative 2.

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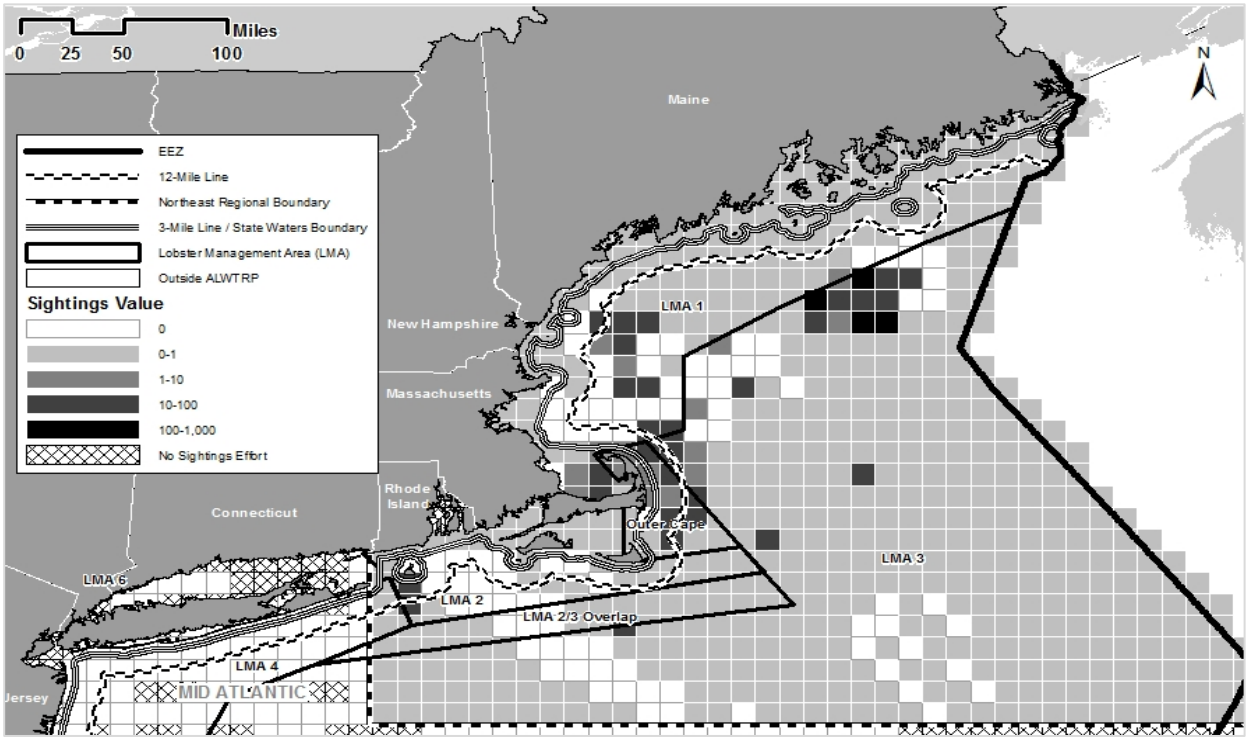
Attachment 5B-1

NORTHEAST SIGHTINGS COMPARISON: COMBINED RIGHT/HUMPBACK WHALE

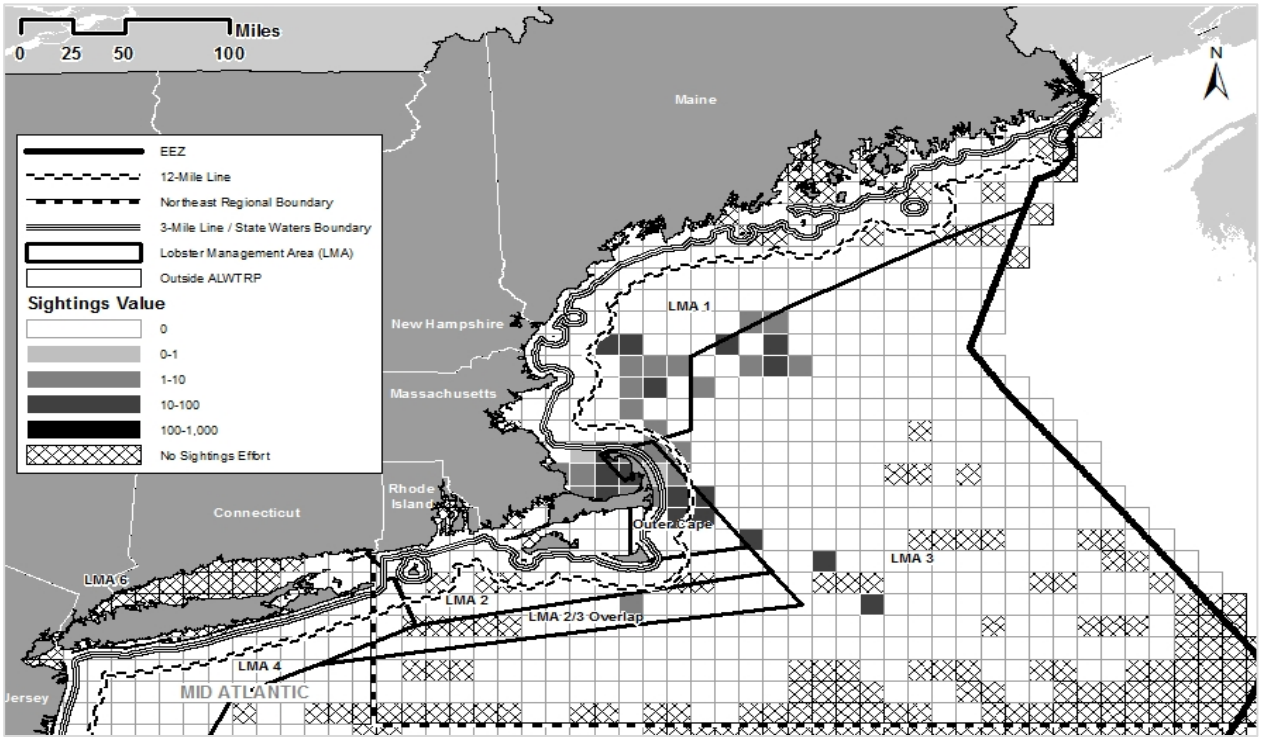
JANUARY - SPUE



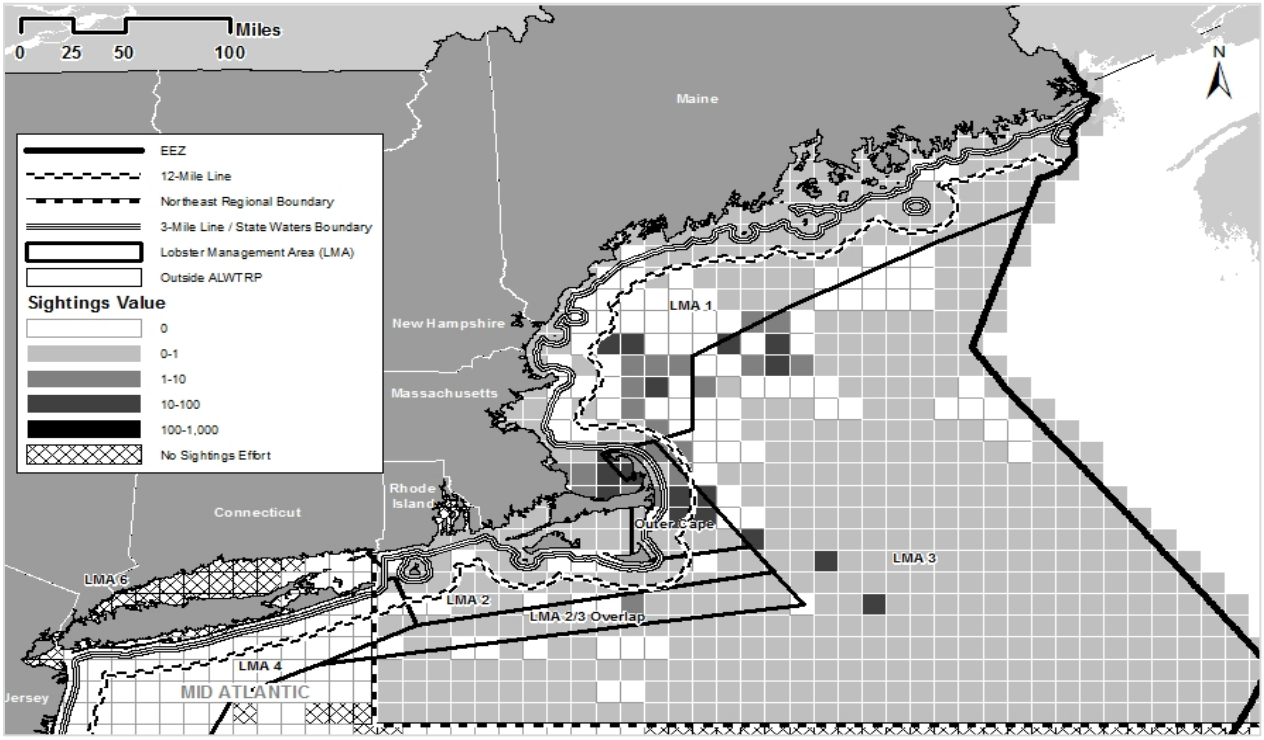
JANUARY – ADJUSTED SIGHTINGS



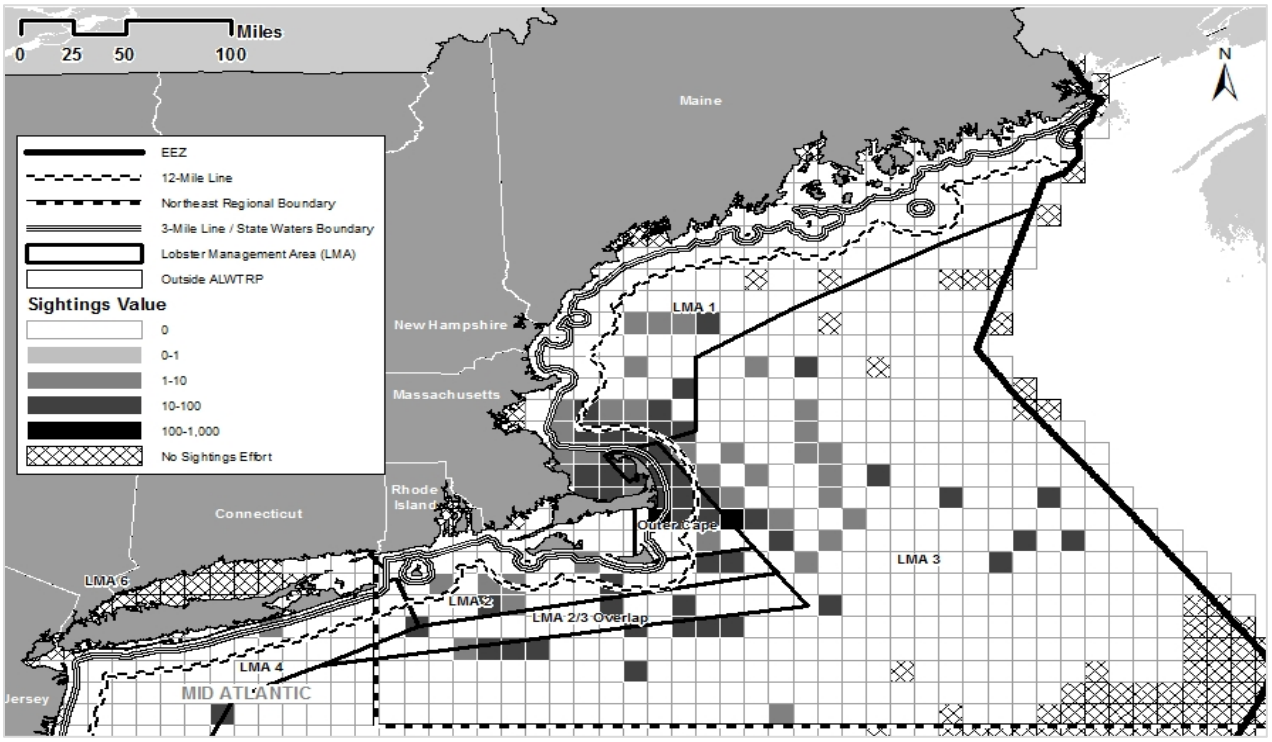
FEBRUARY – SPUE



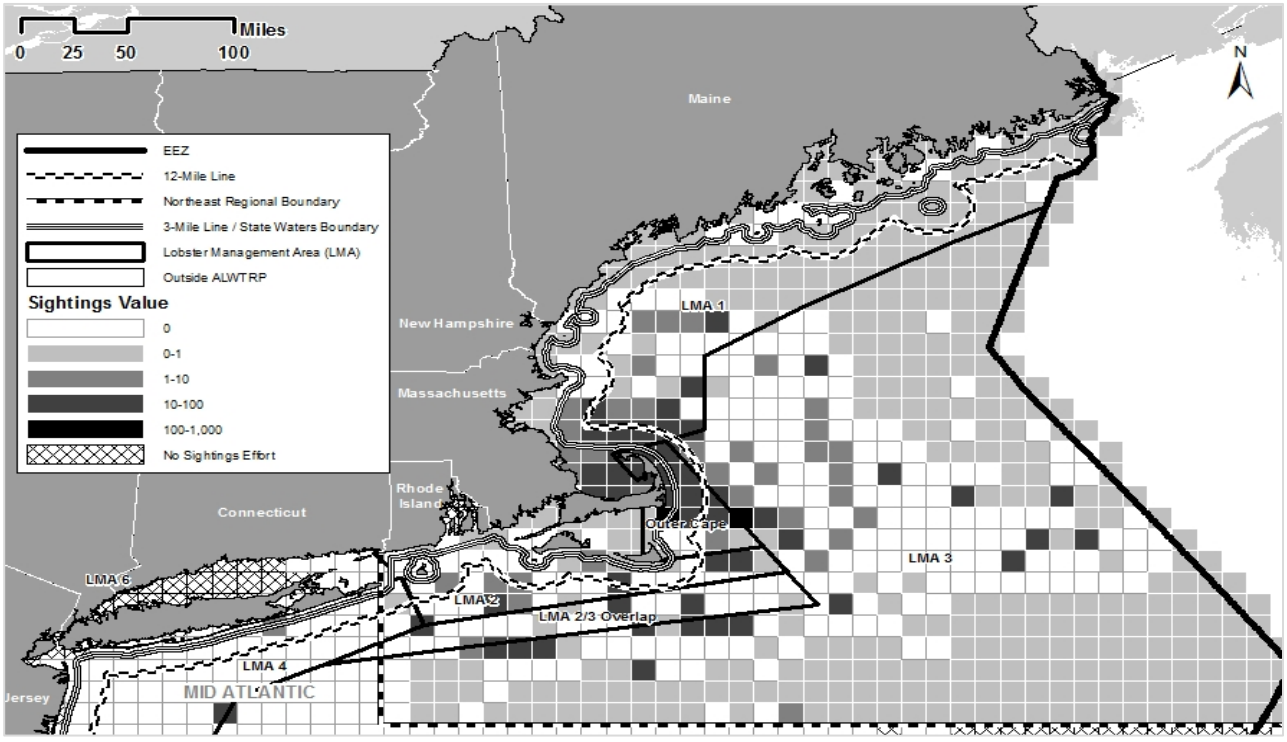
FEBRUARY – ADJUSTED SIGHTINGS



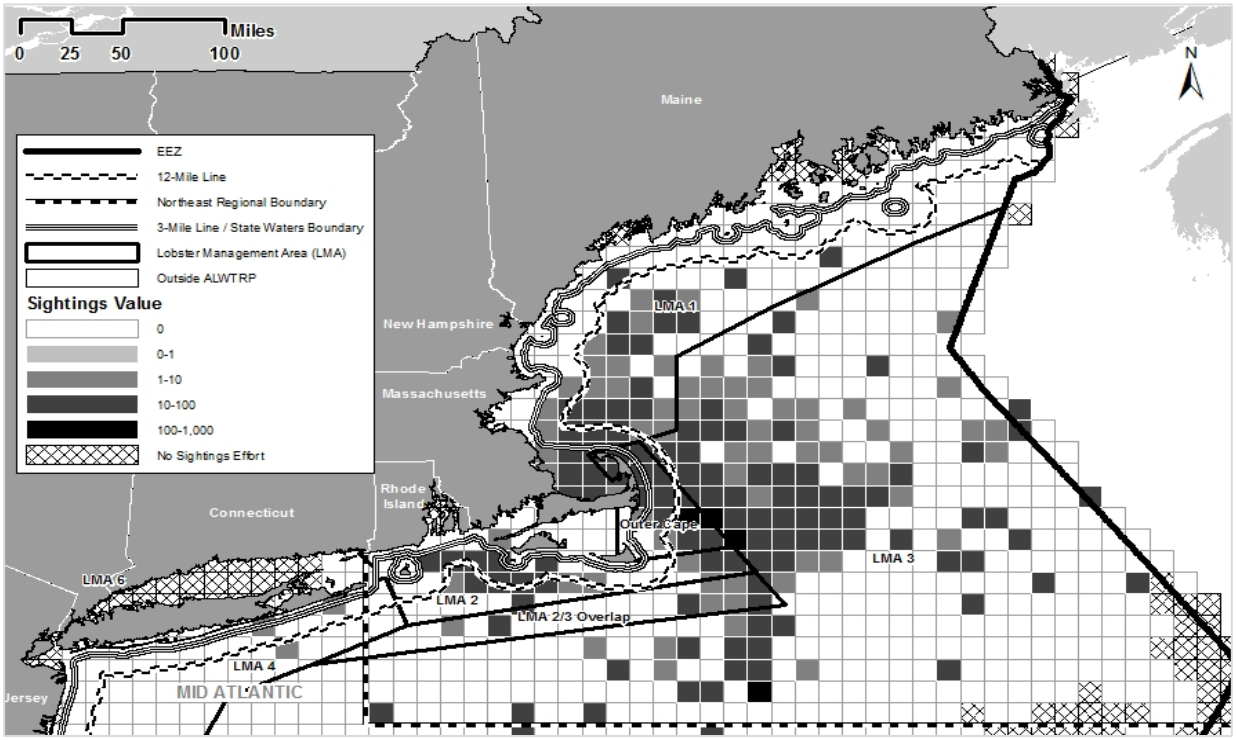
MARCH – SPUE



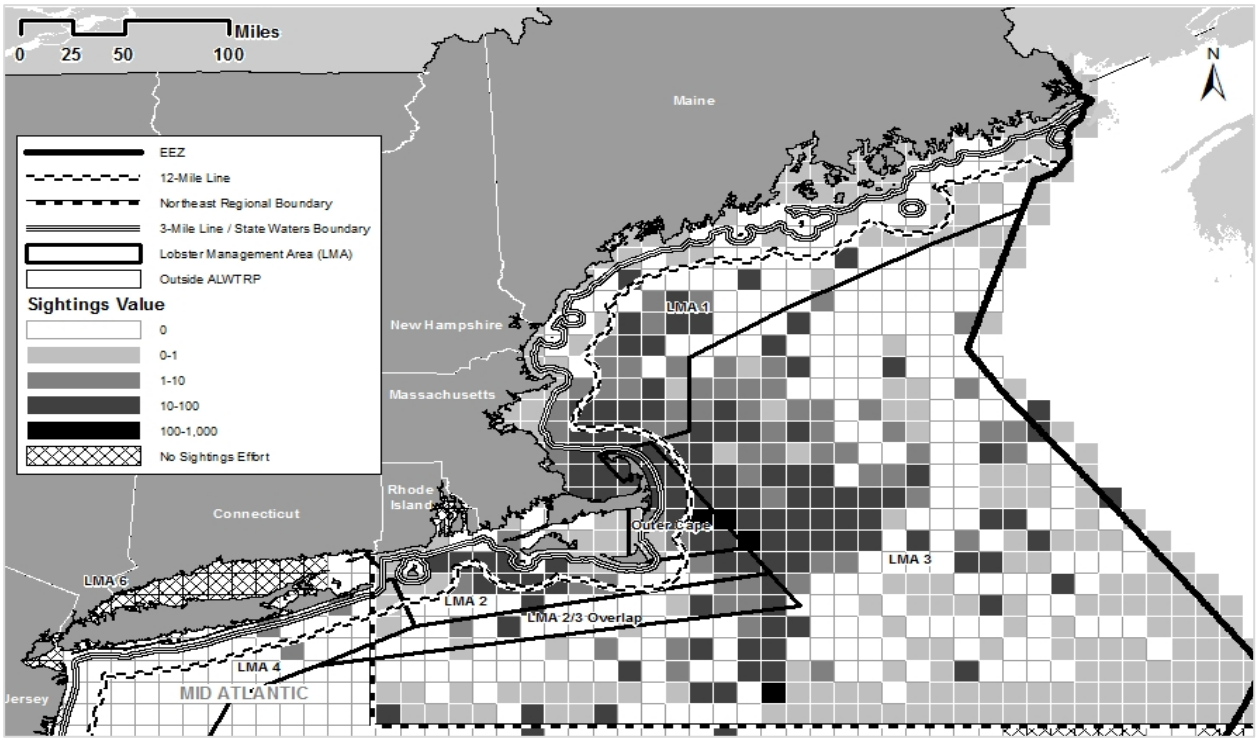
MARCH – ADJUSTED SIGHTINGS



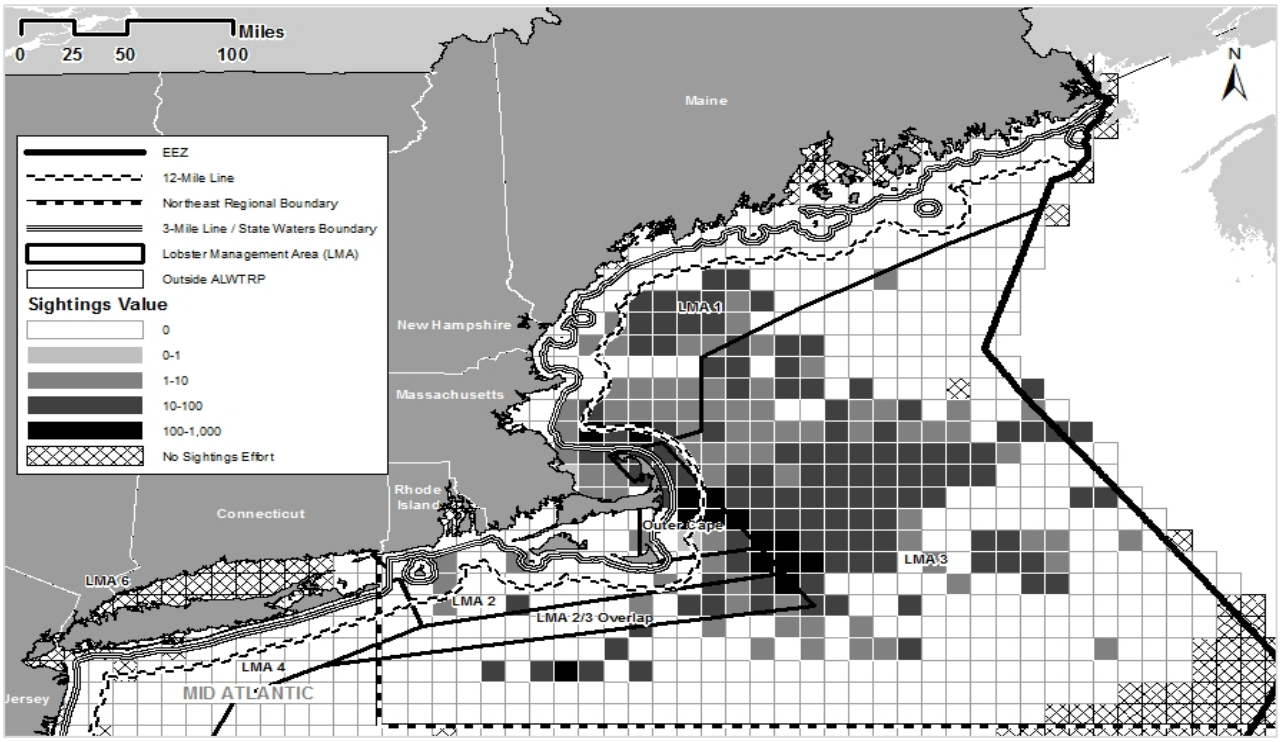
APRIL – SPUE



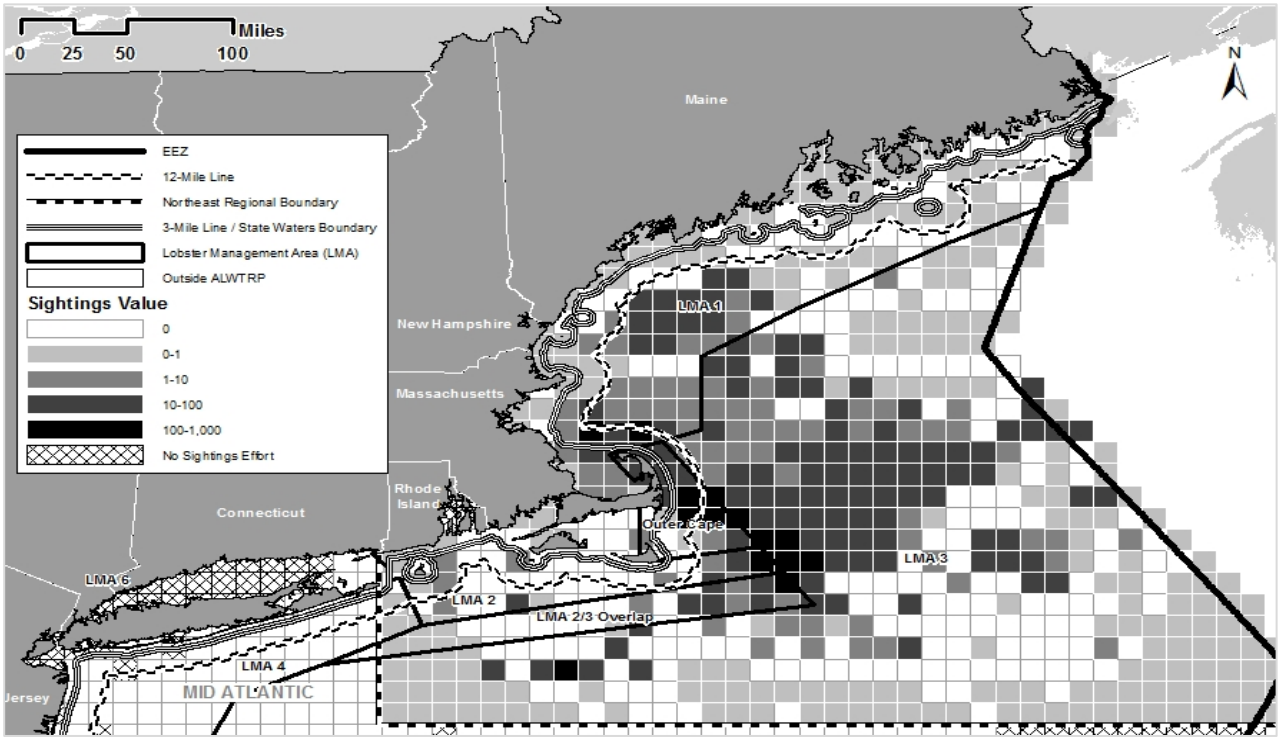
APRIL – ADJUSTED SIGHTINGS



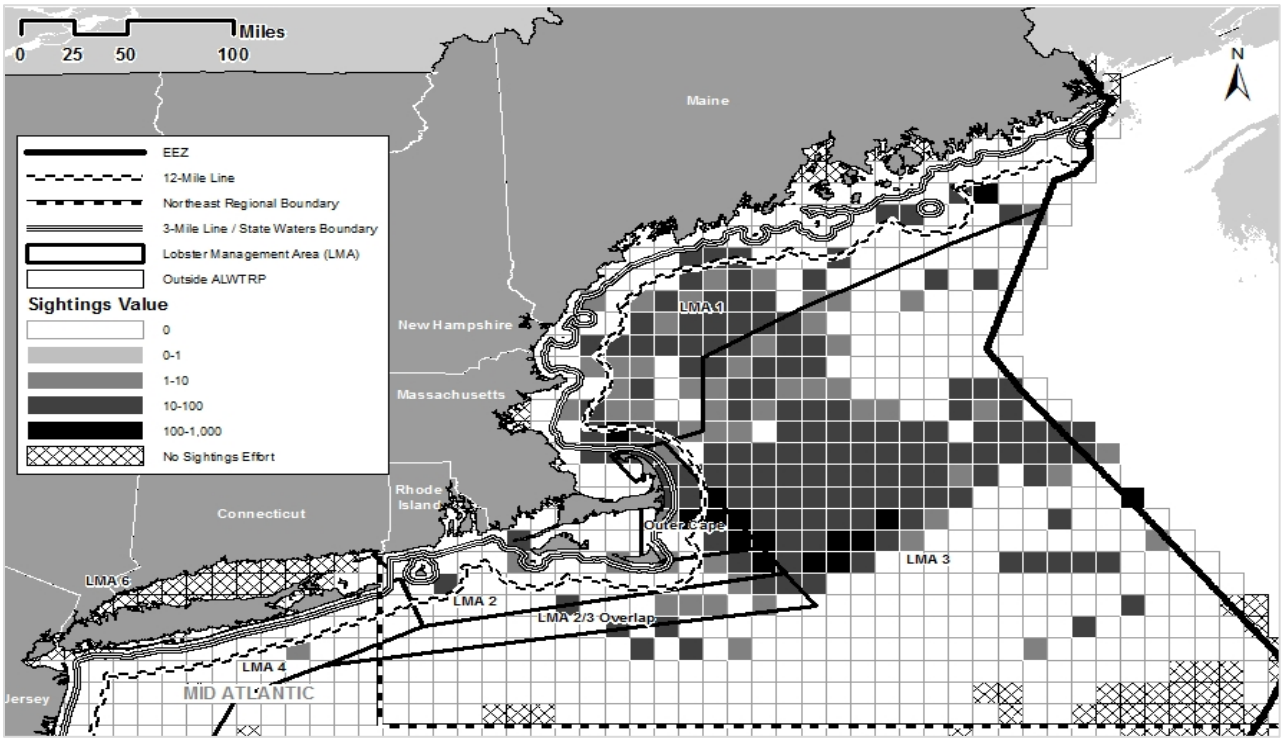
MAY – SPUE



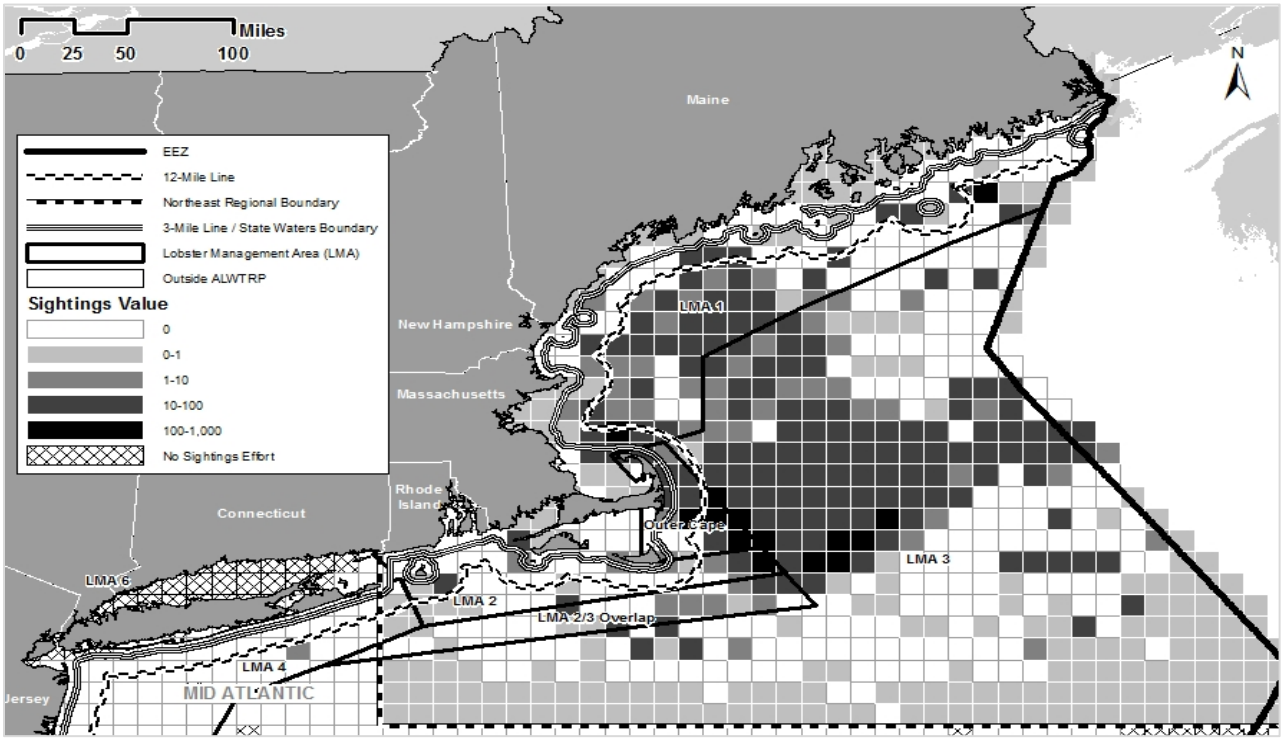
MAY – ADJUSTED SIGHTINGS



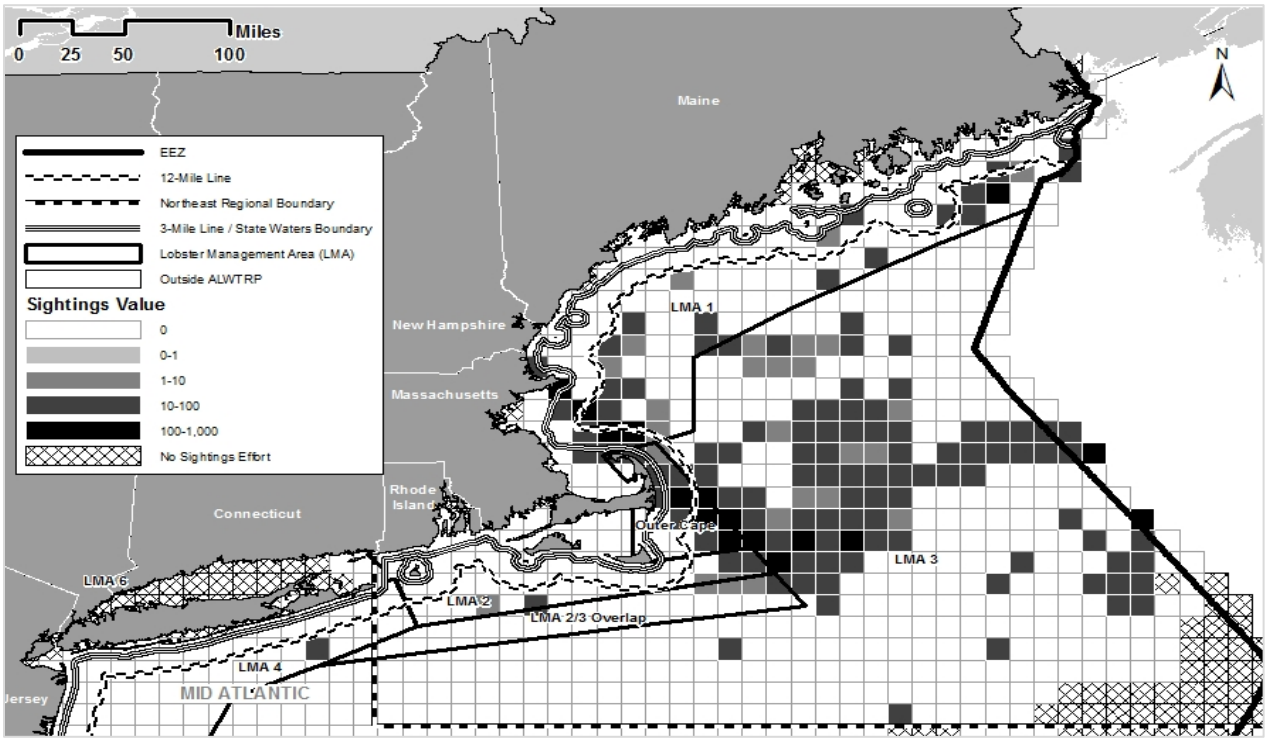
JUNE – SPUE



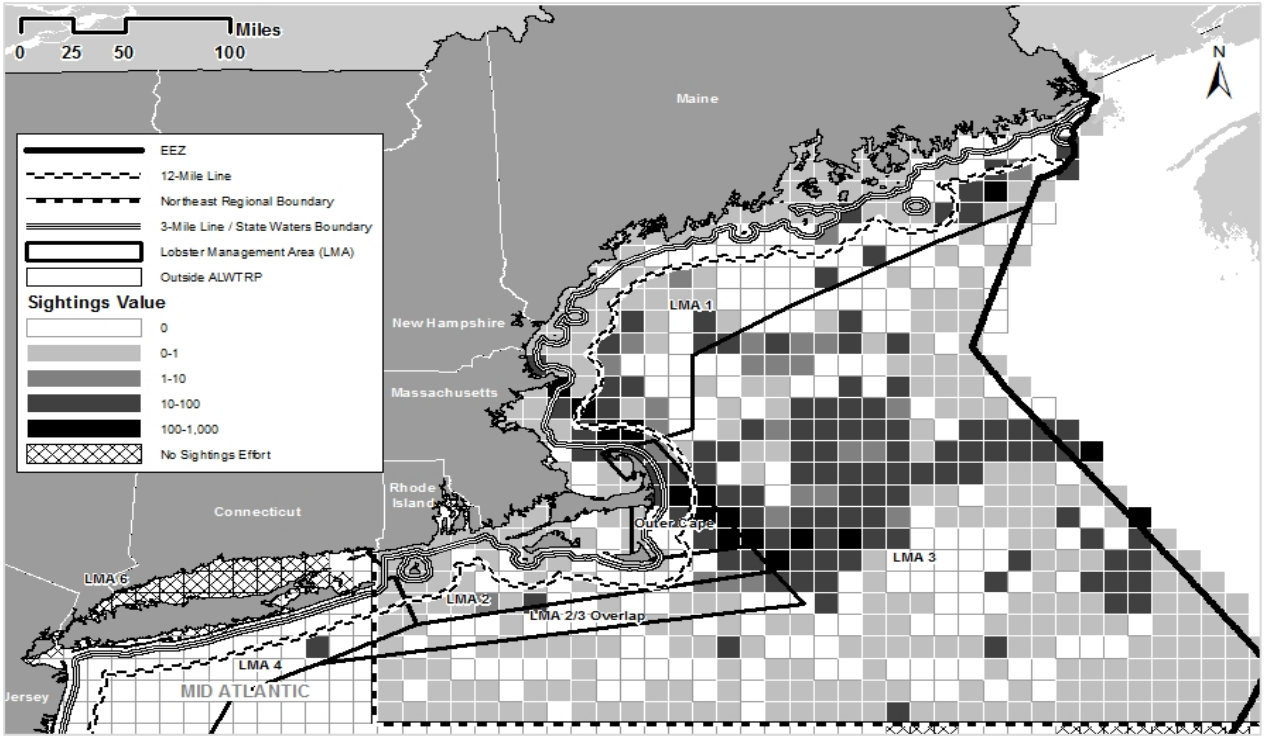
JUNE – ADJUSTED SIGHTINGS



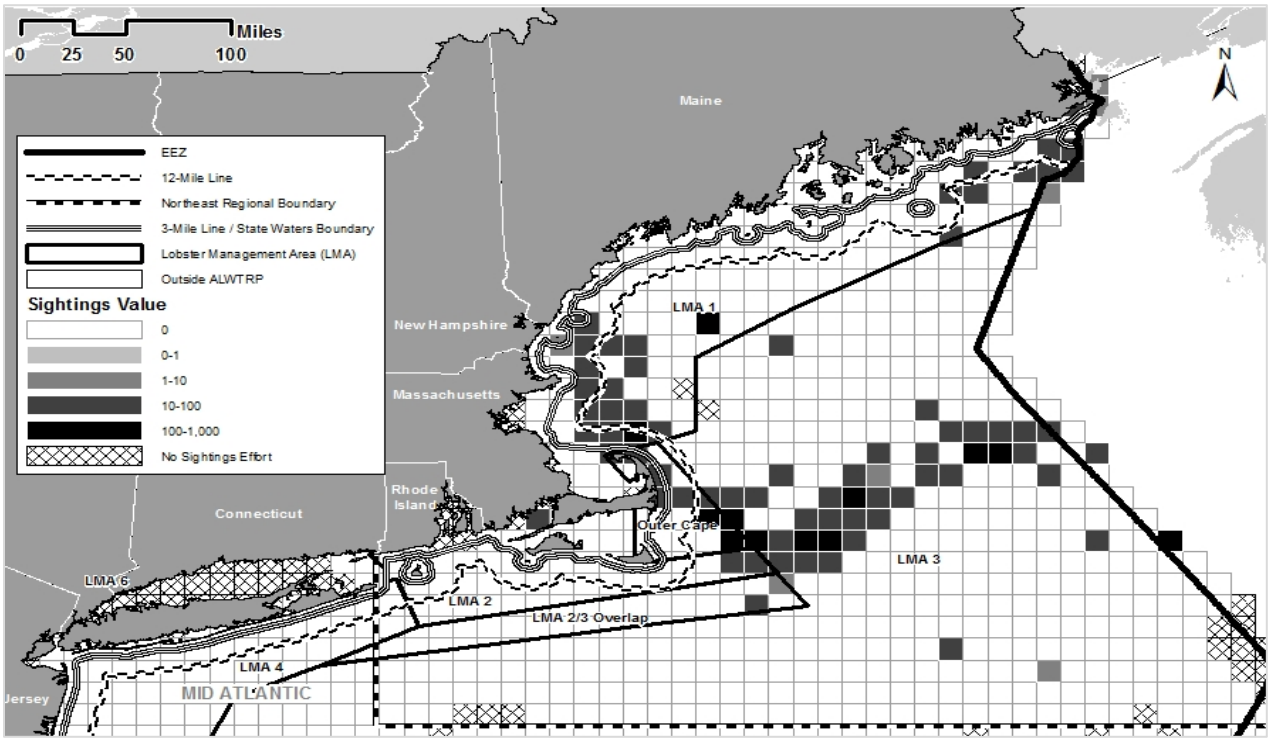
JULY – SPUE



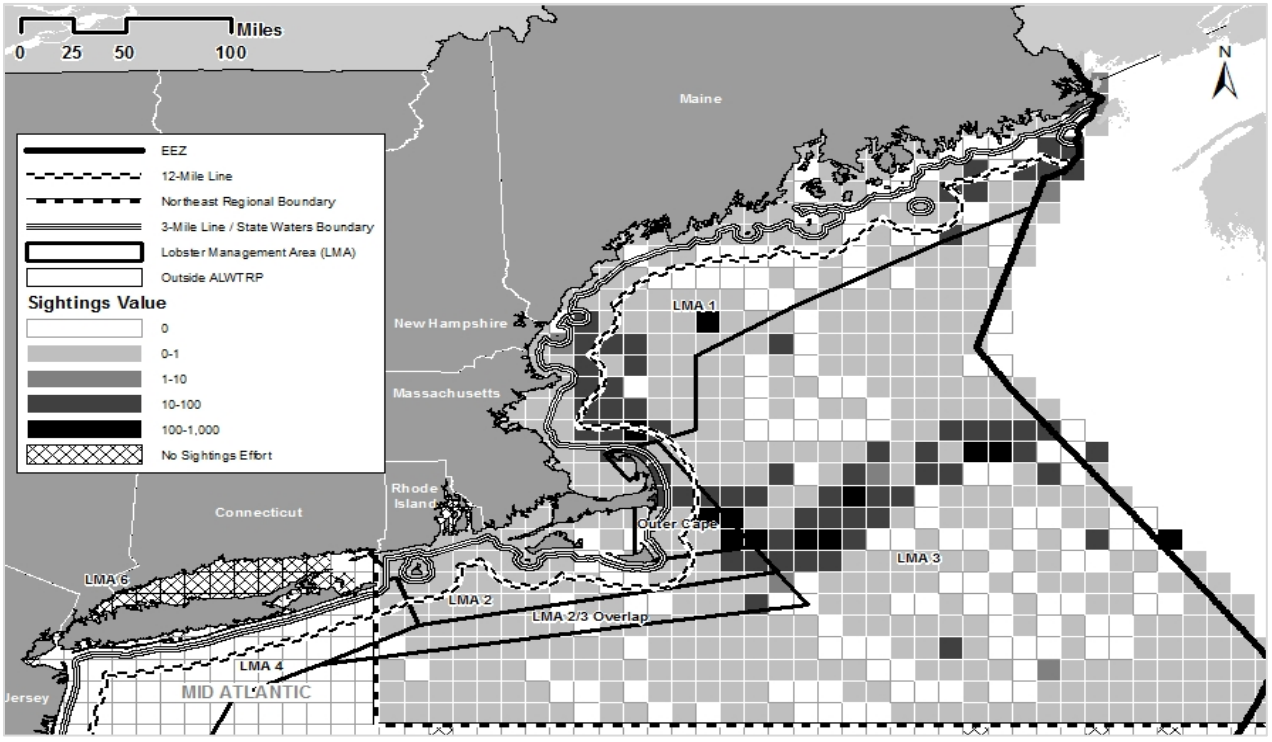
JULY – ADJUSTED SIGHTINGS



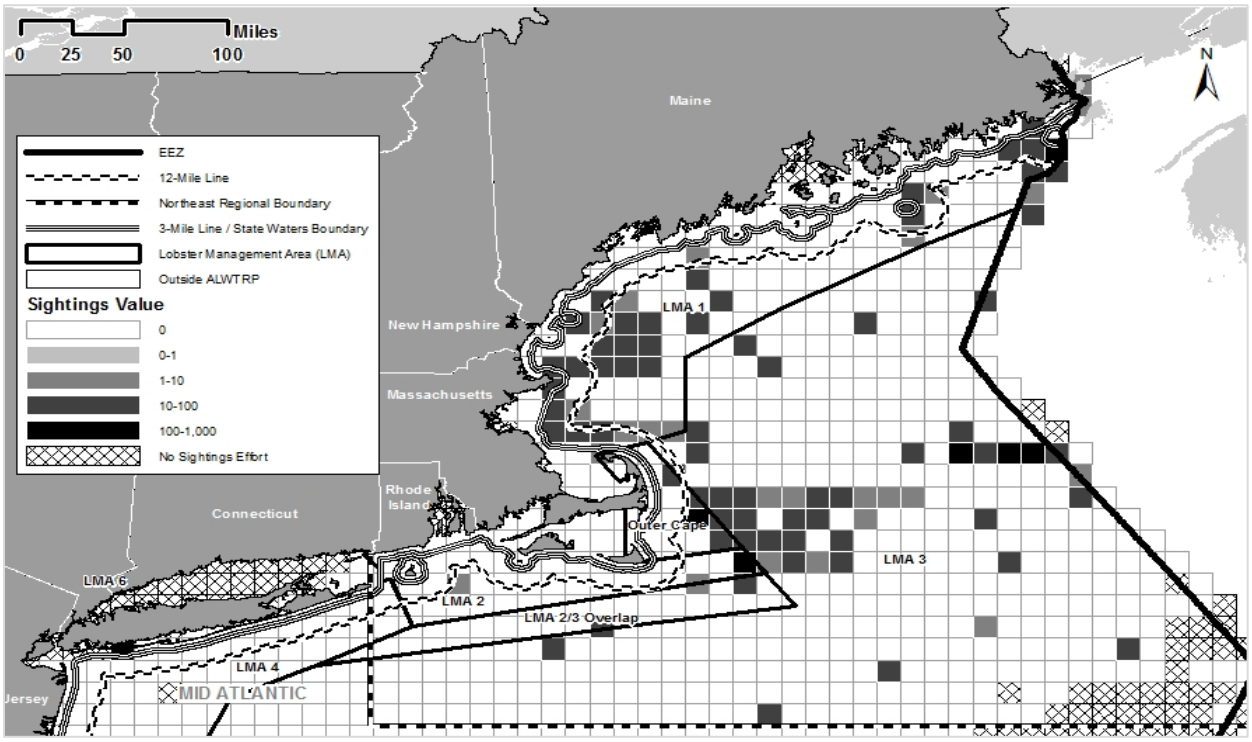
AUGUST – SPUE



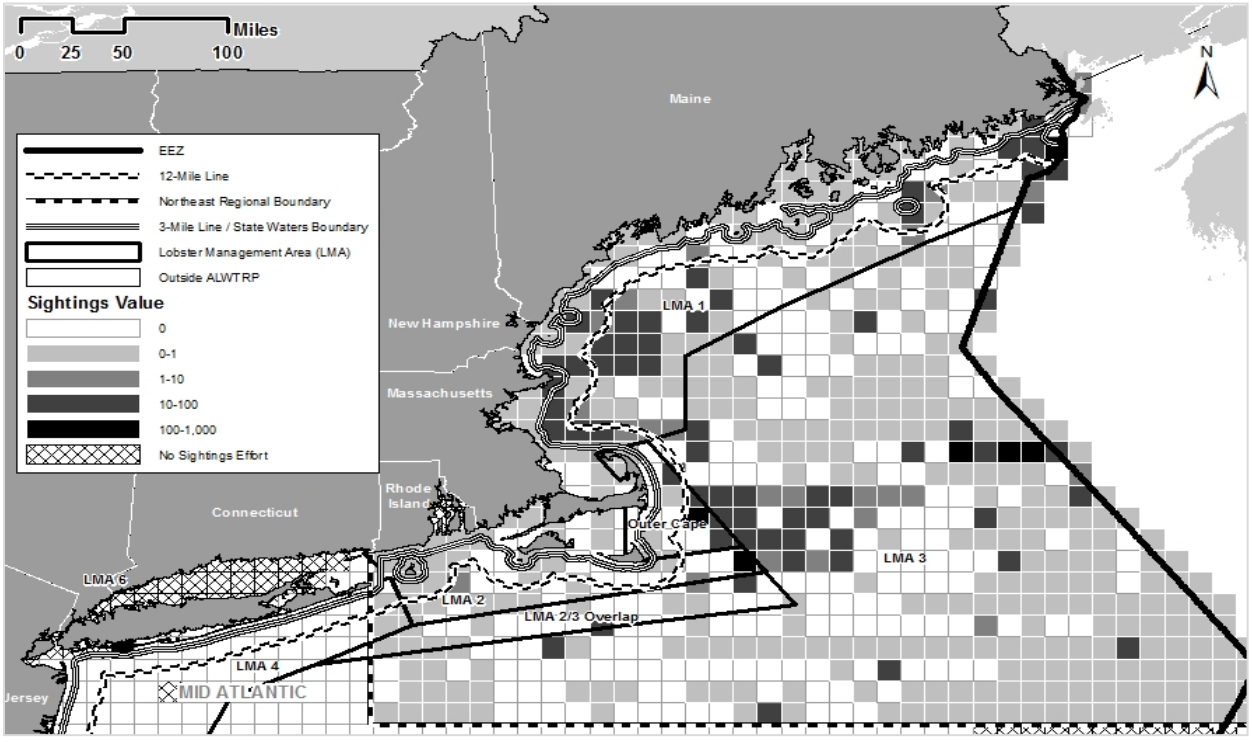
AUGUST – ADJUSTED SIGHTINGS



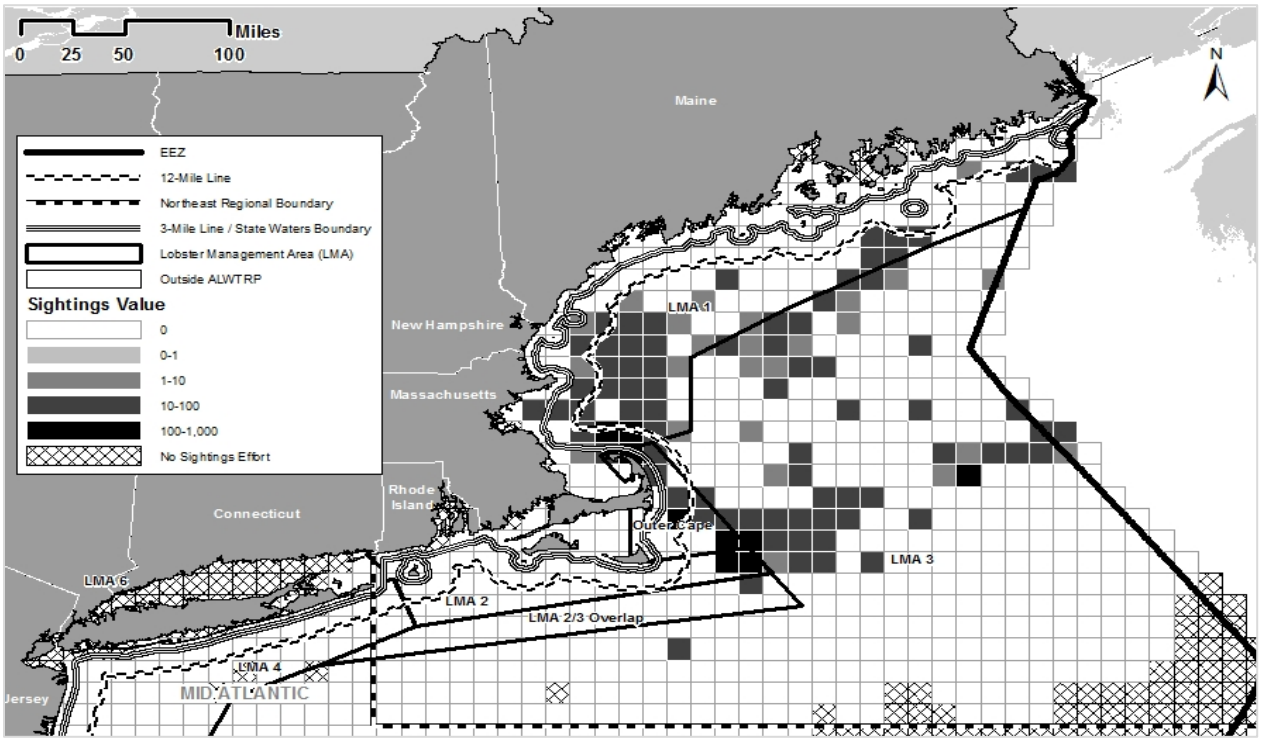
SEPTEMBER – SPUE



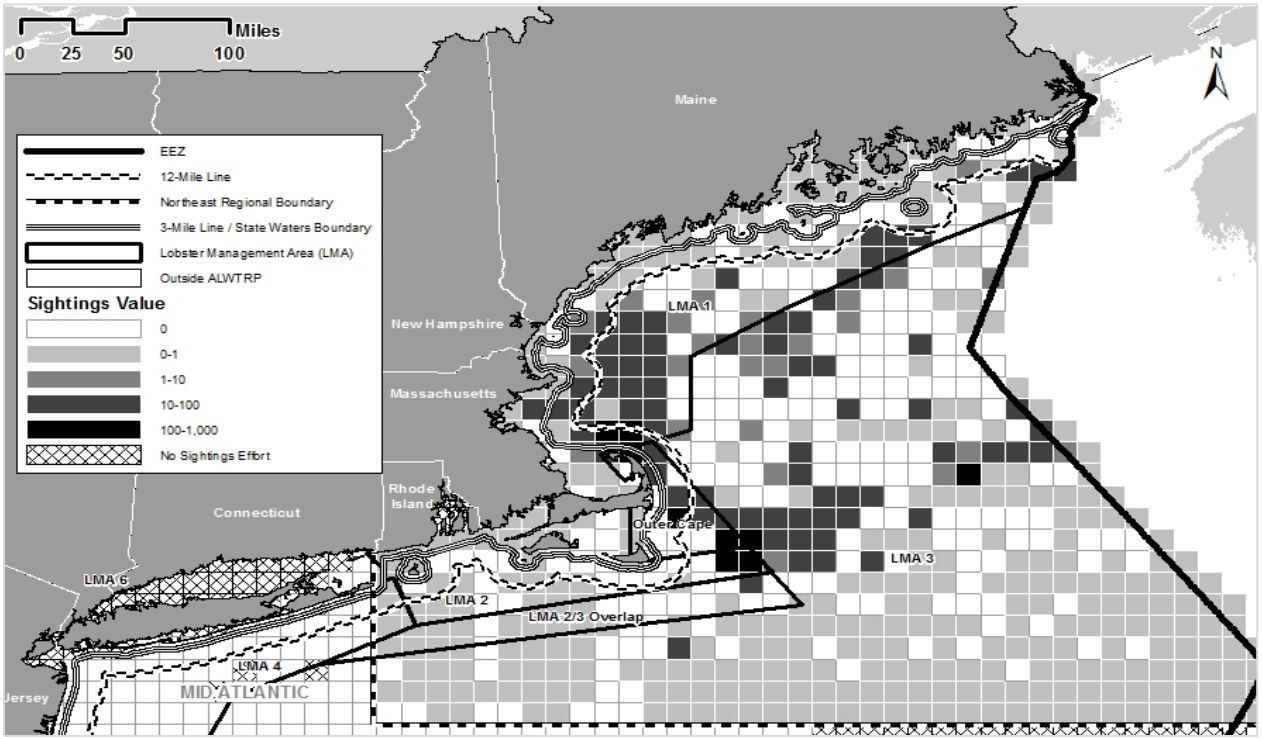
SEPTEMBER – ADJUSTED SIGHTINGS



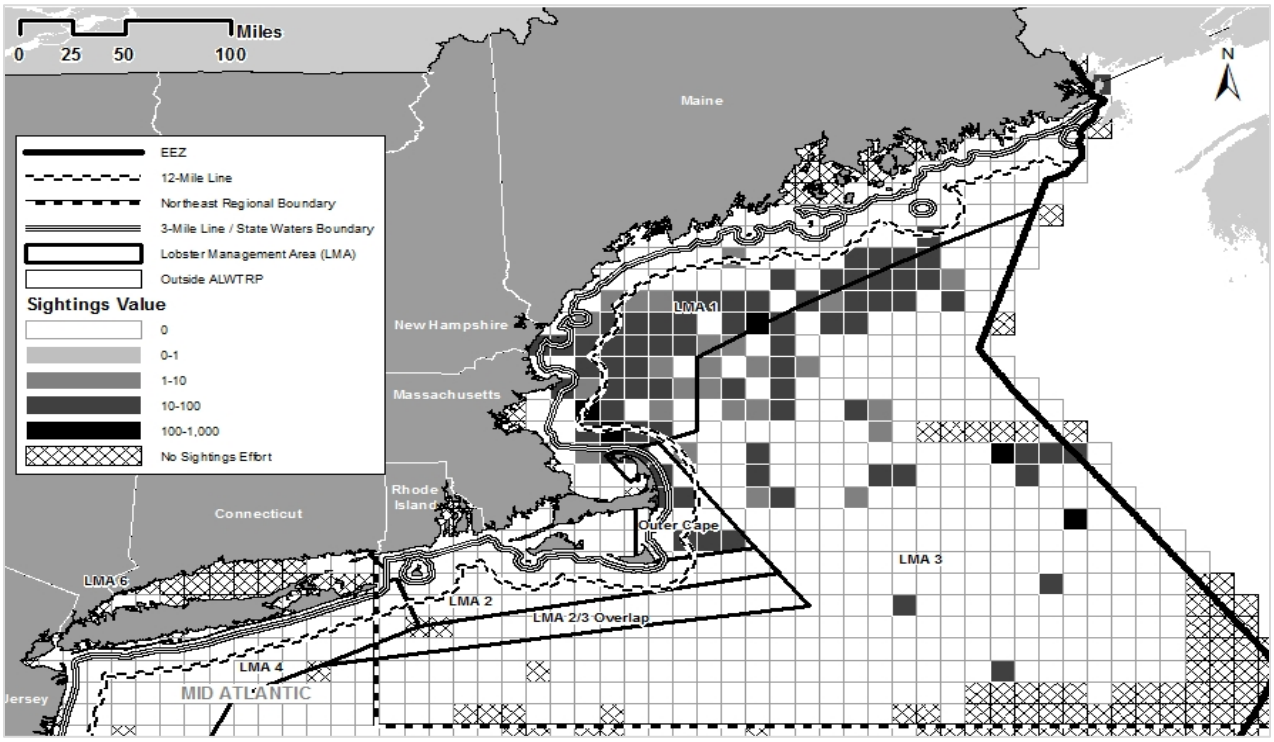
OCTOBER – SPUE



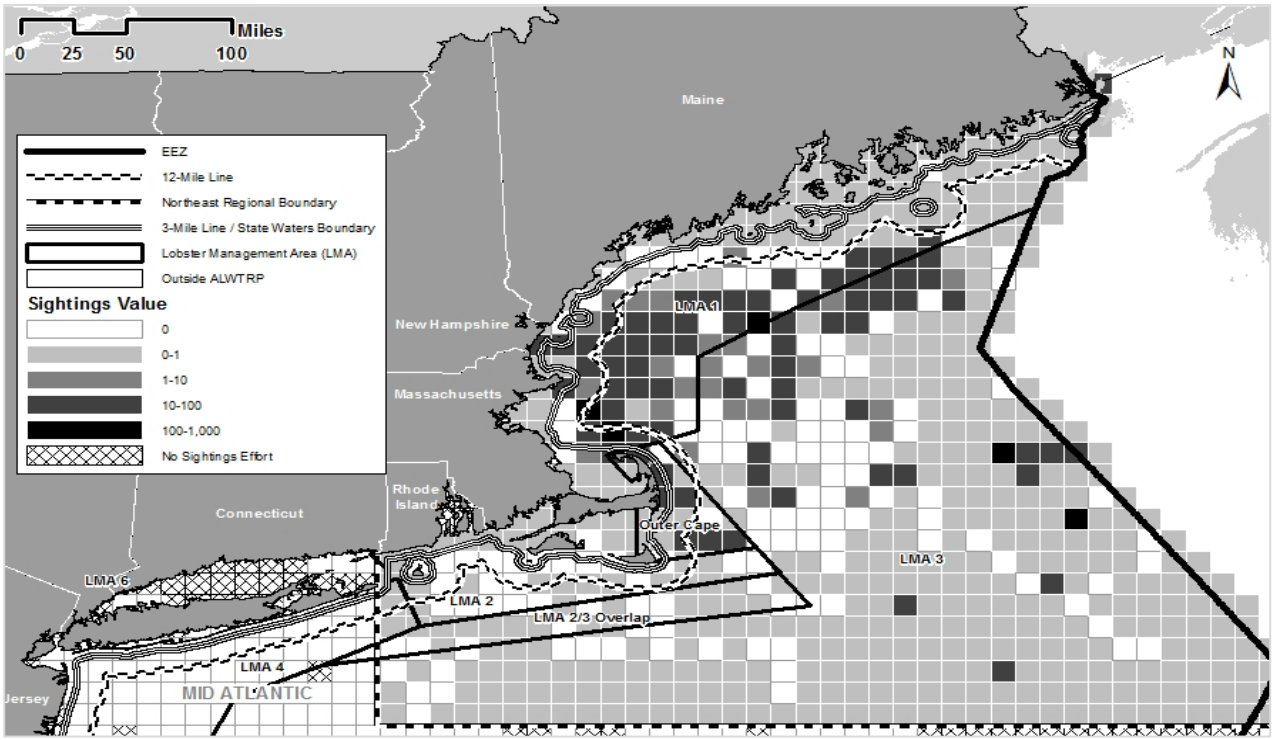
OCTOBER – ADJUSTED SIGHTINGS



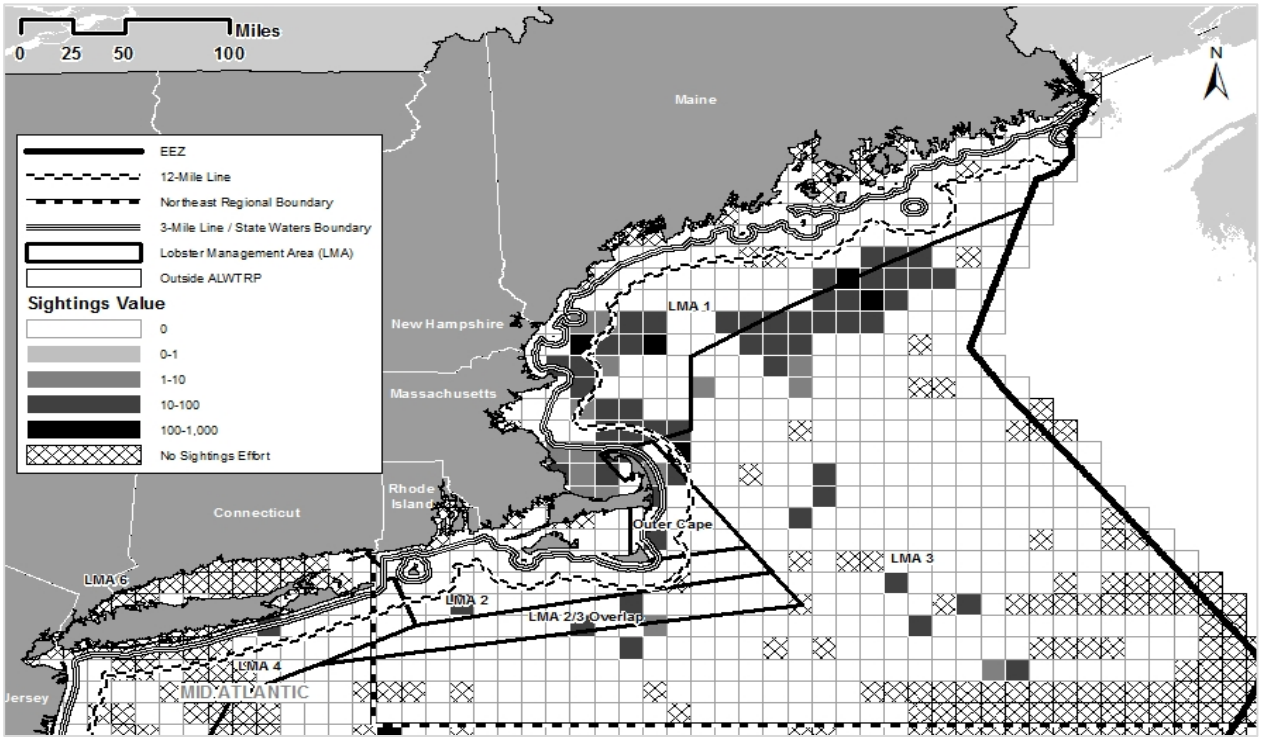
NOVEMBER – SPUE



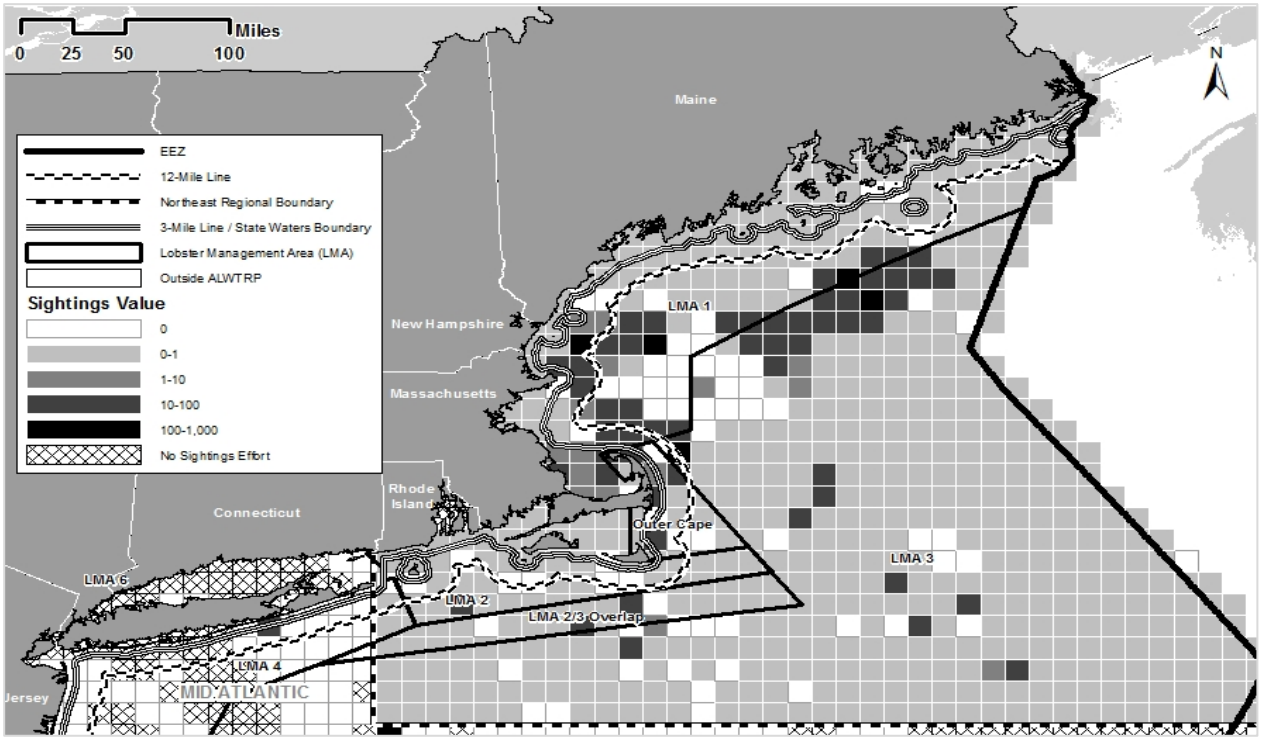
NOVEMBER – ADJUSTED SIGHTINGS



DECEMBER – SPUE



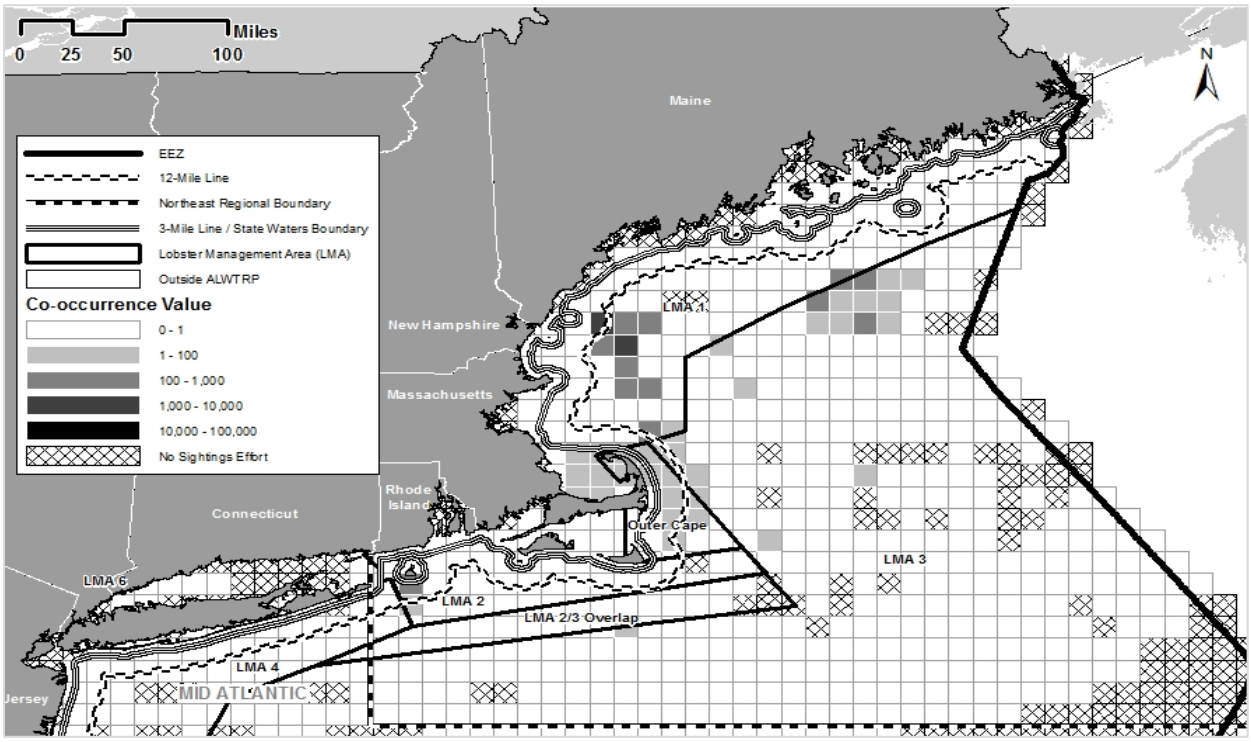
DECEMBER – ADJUSTED SIGHTINGS



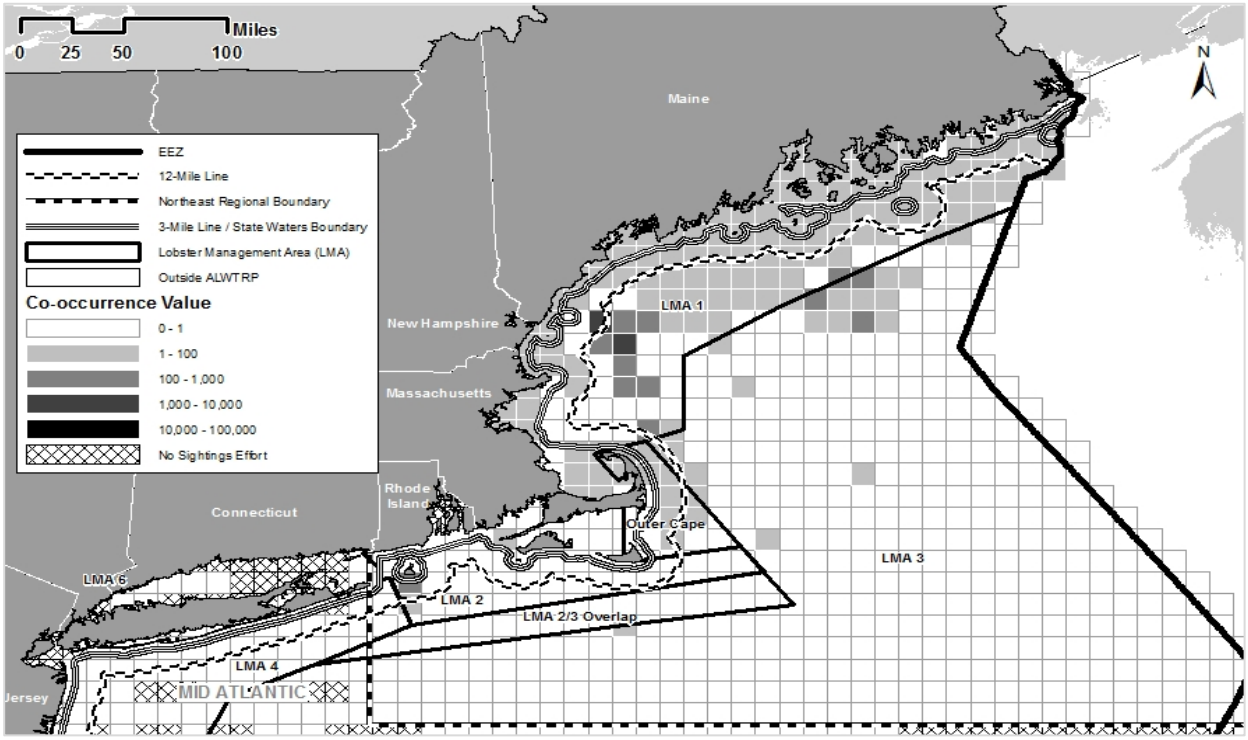
ATTACHMENT 5B-2

NORTHEAST BASELINE CO-OCCURRENCE COMPARISON: COMBINED RIGHT/HUMPBACK WHALE

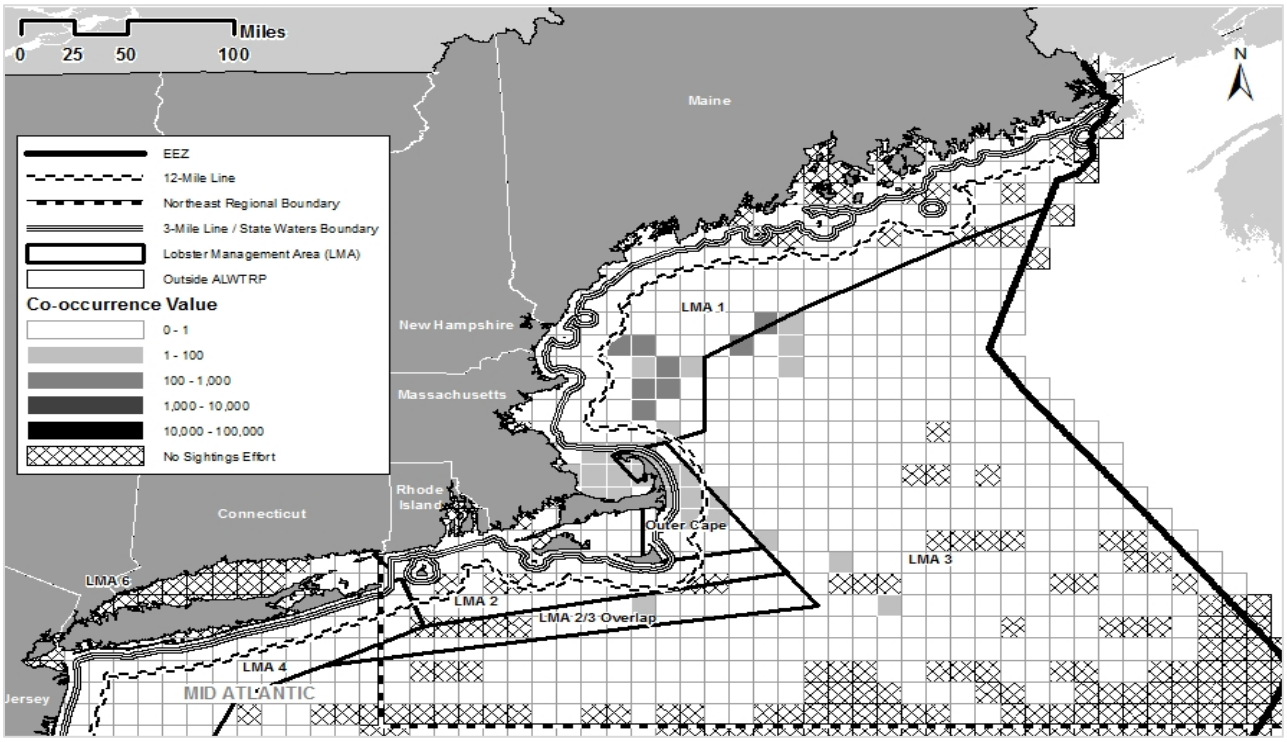
JANUARY – CO-OCCURRENCE BASED ON SPUE



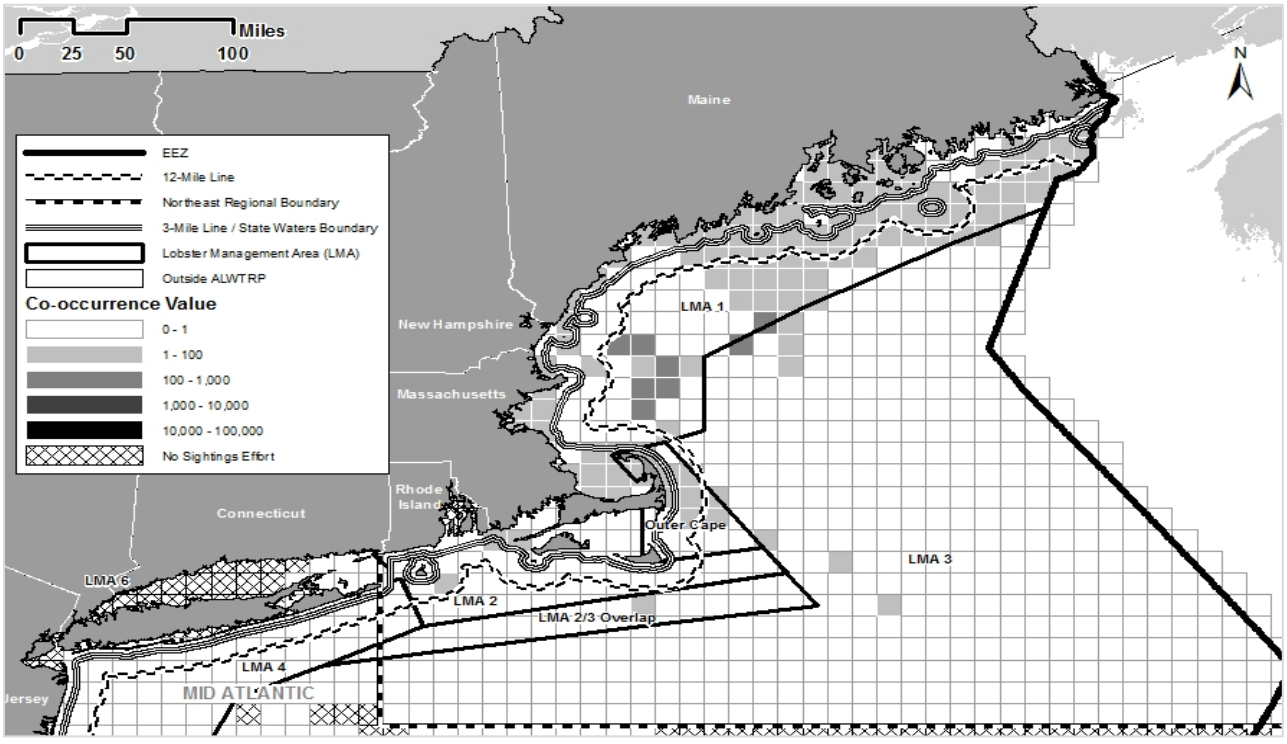
JANUARY – CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



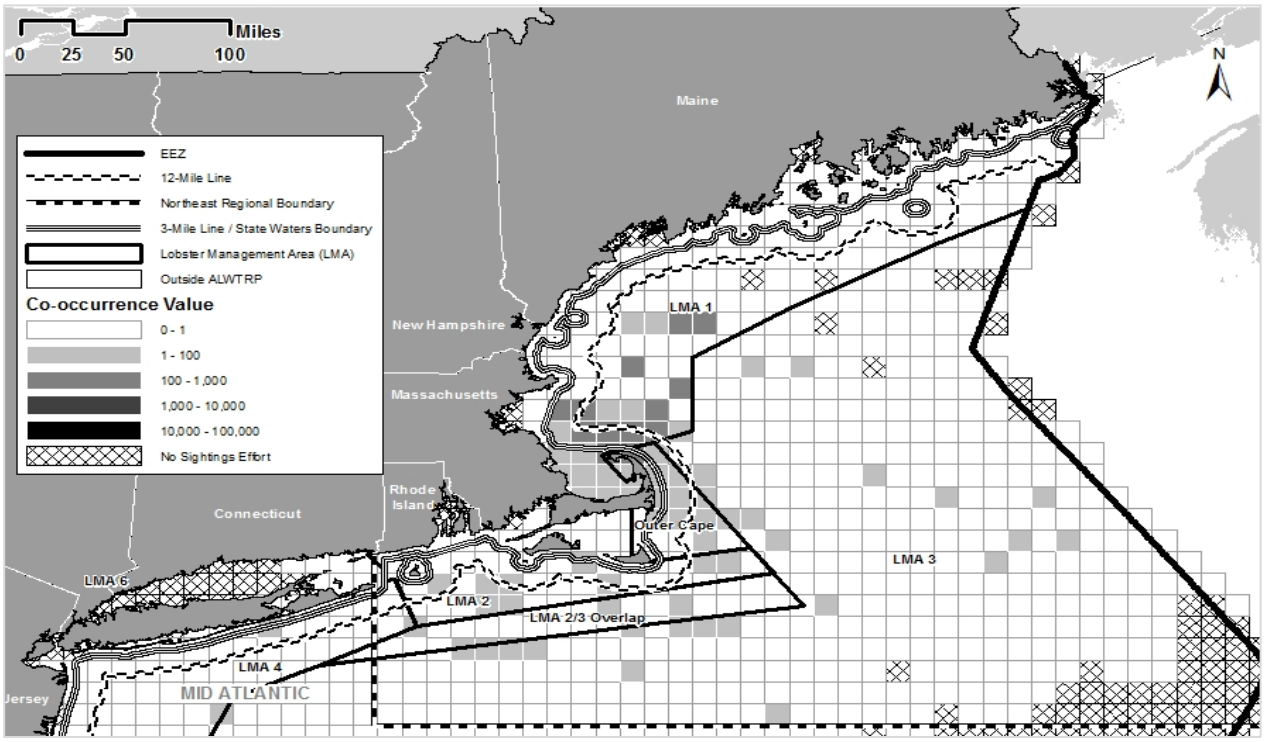
FEBRUARY – CO-OCCURRENCE BASED ON SPUE



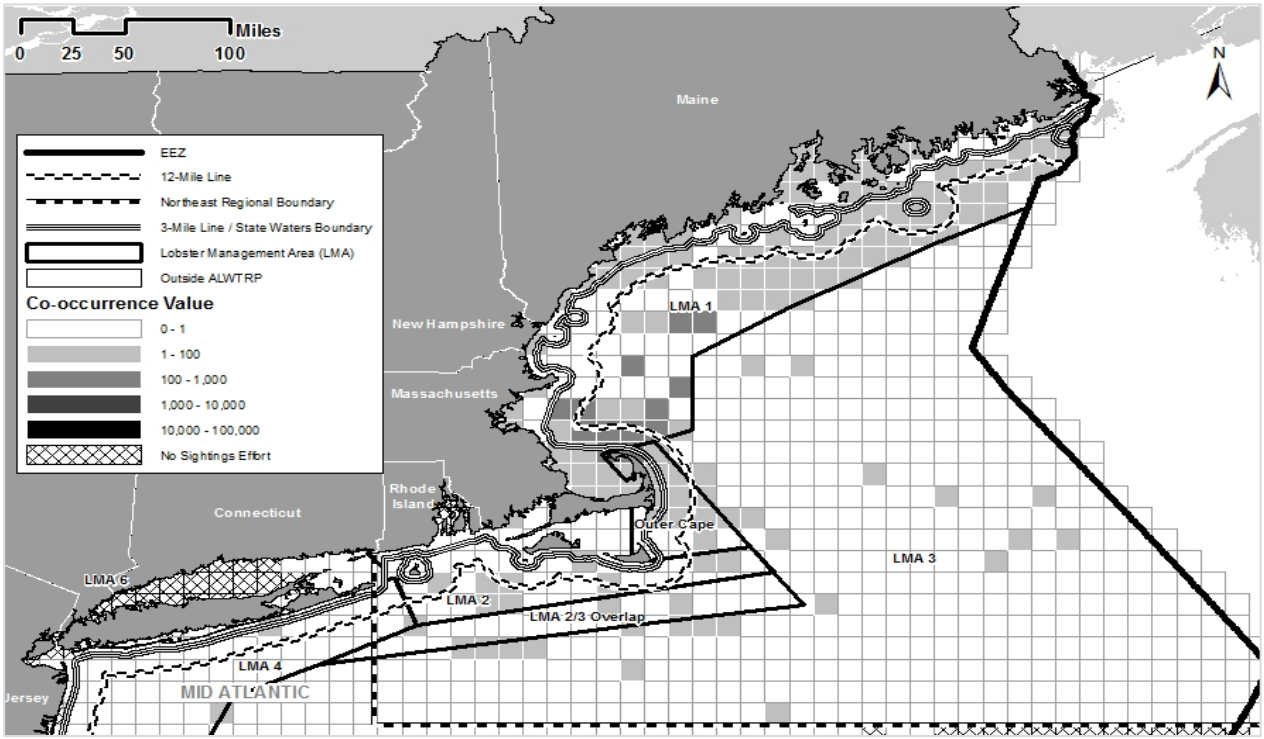
FEBRUARY – CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



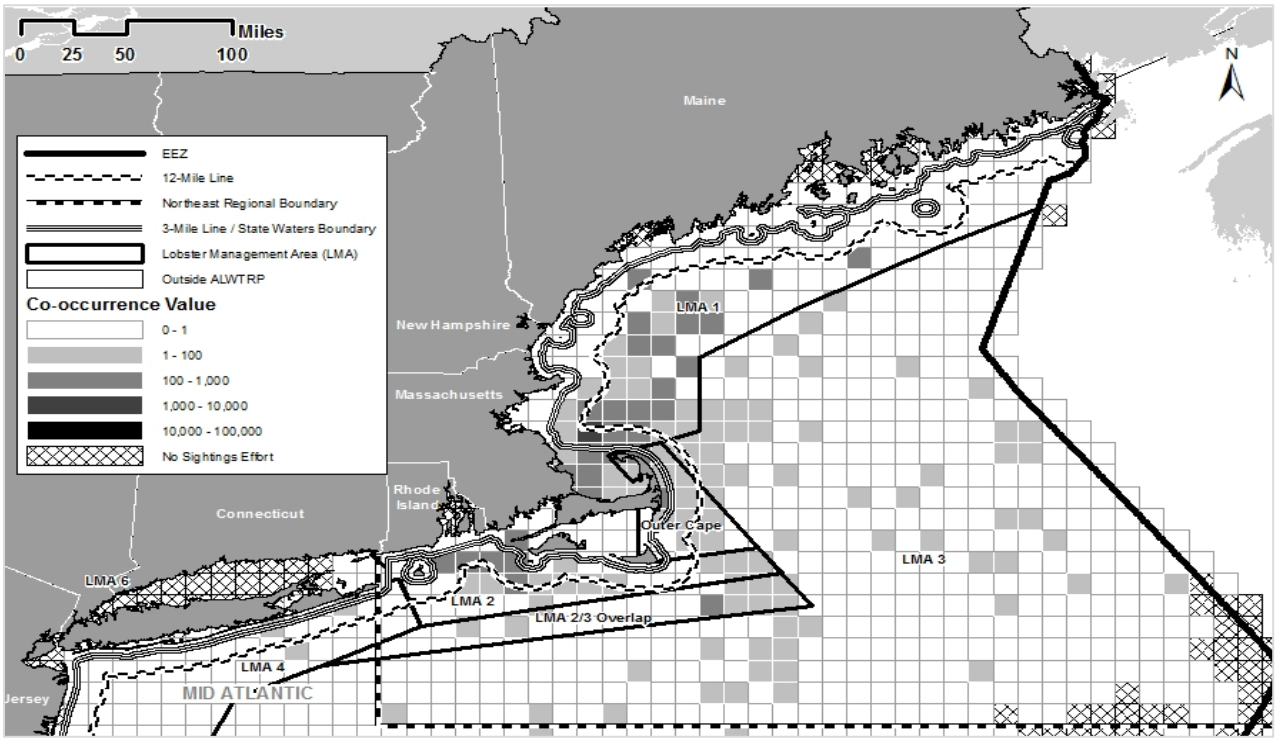
MARCH – CO-OCCURRENCE BASED ON SPUE



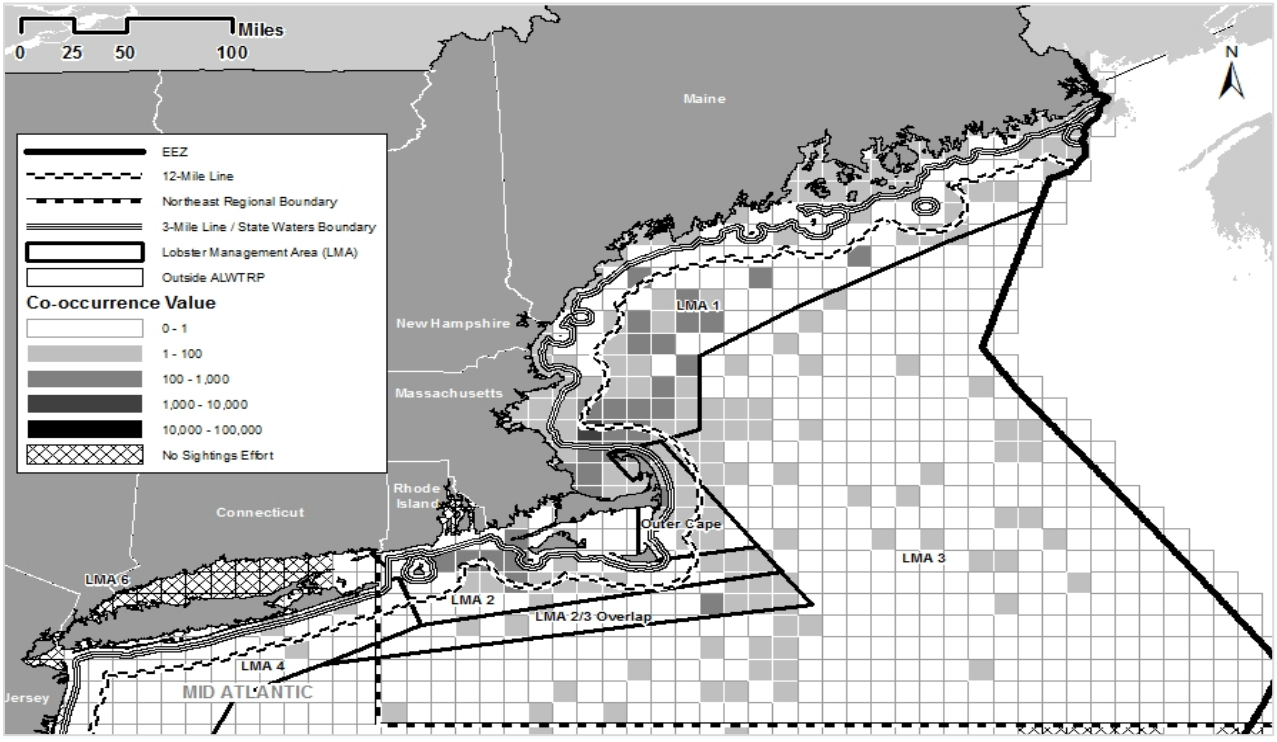
MARCH – CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



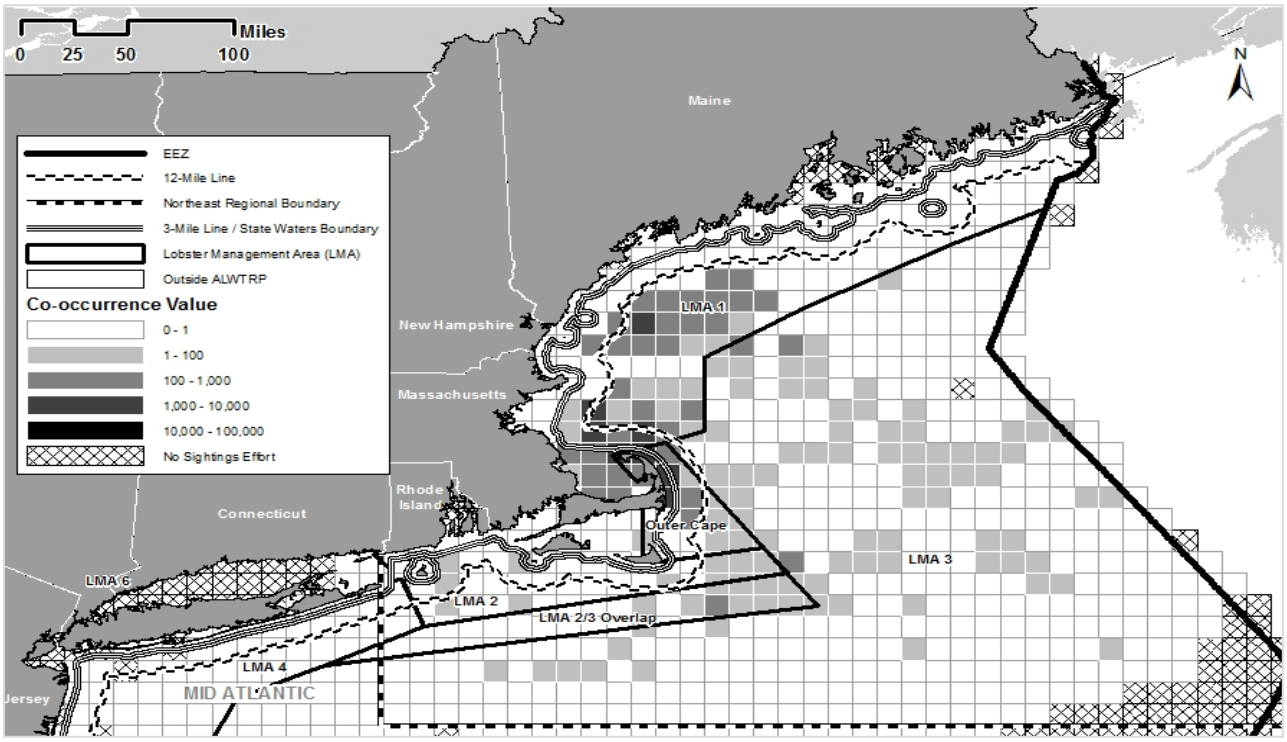
APRIL – CO-OCCURRENCE BASED ON SPUE



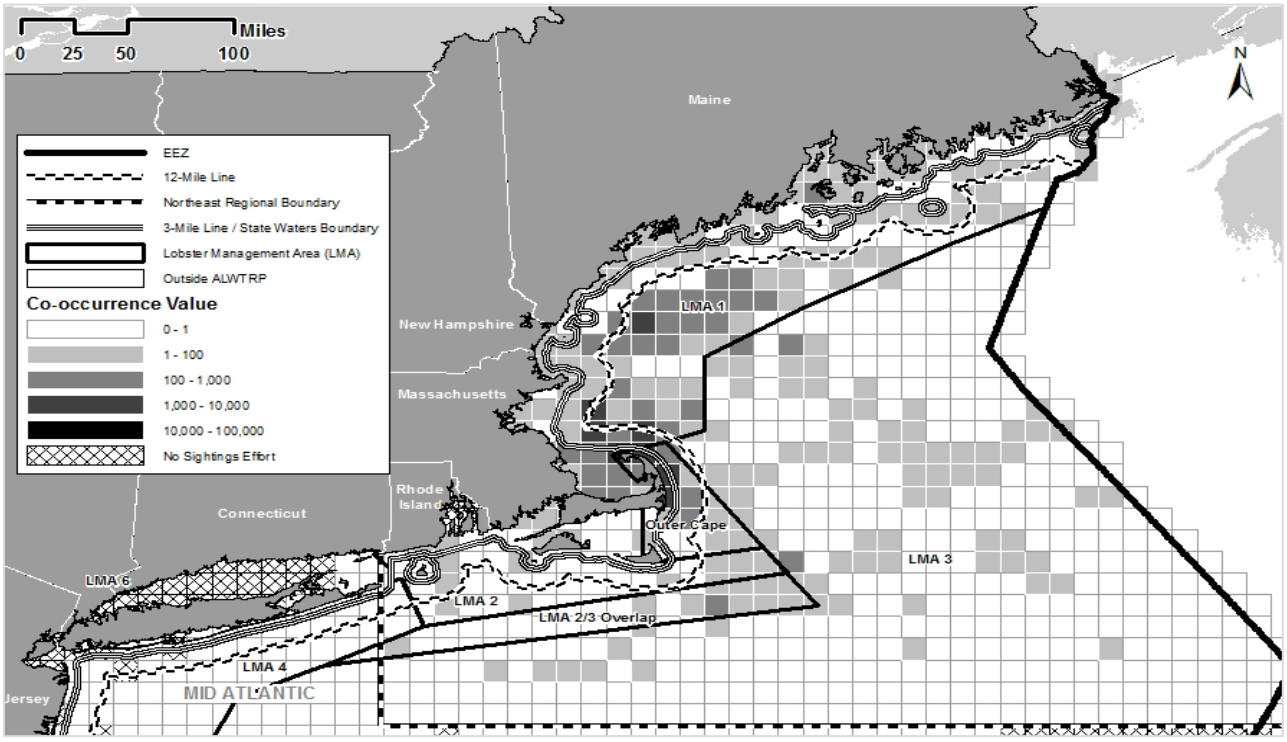
APRIL – CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



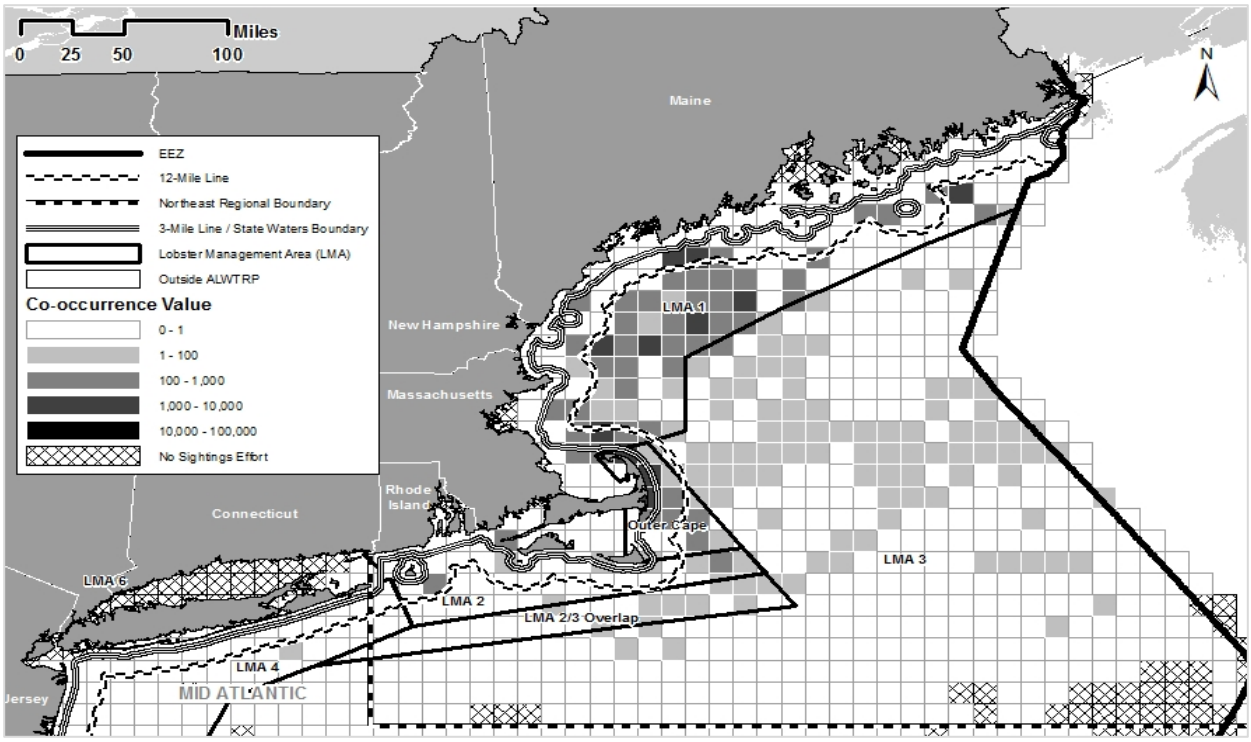
MAY – CO-OCCURRENCE BASED ON SPUE



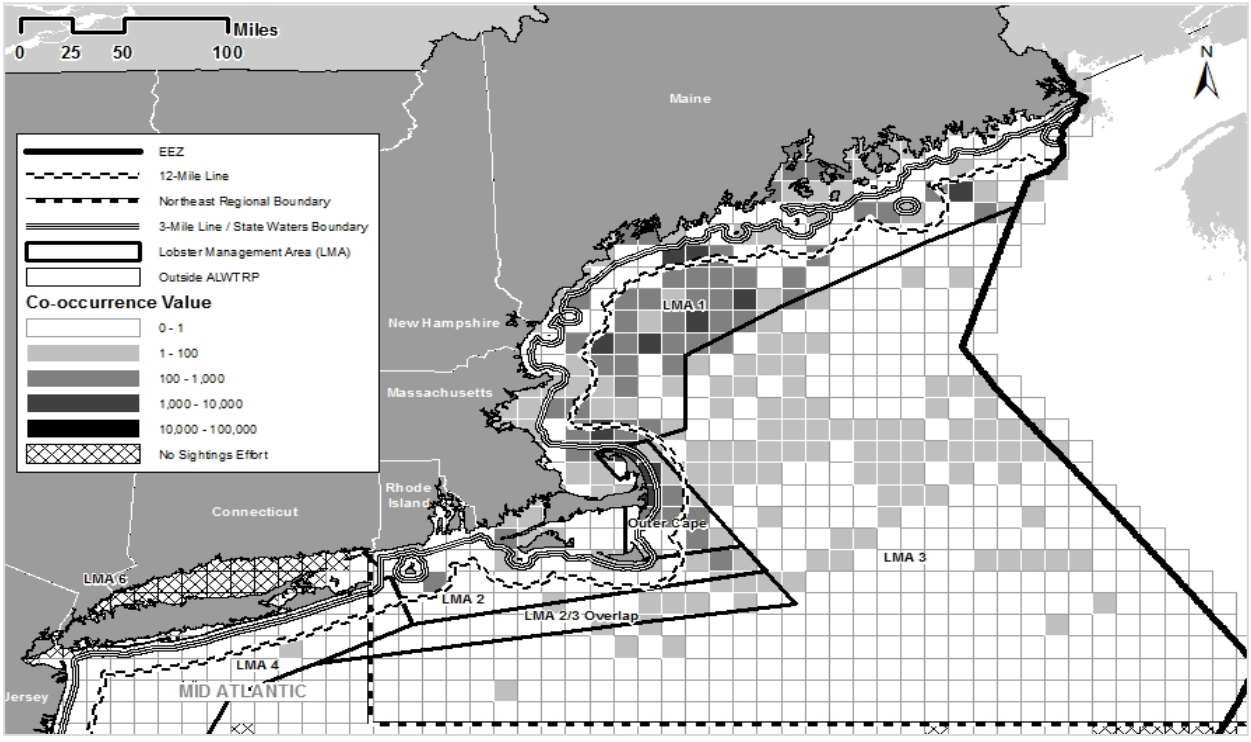
MAY – CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



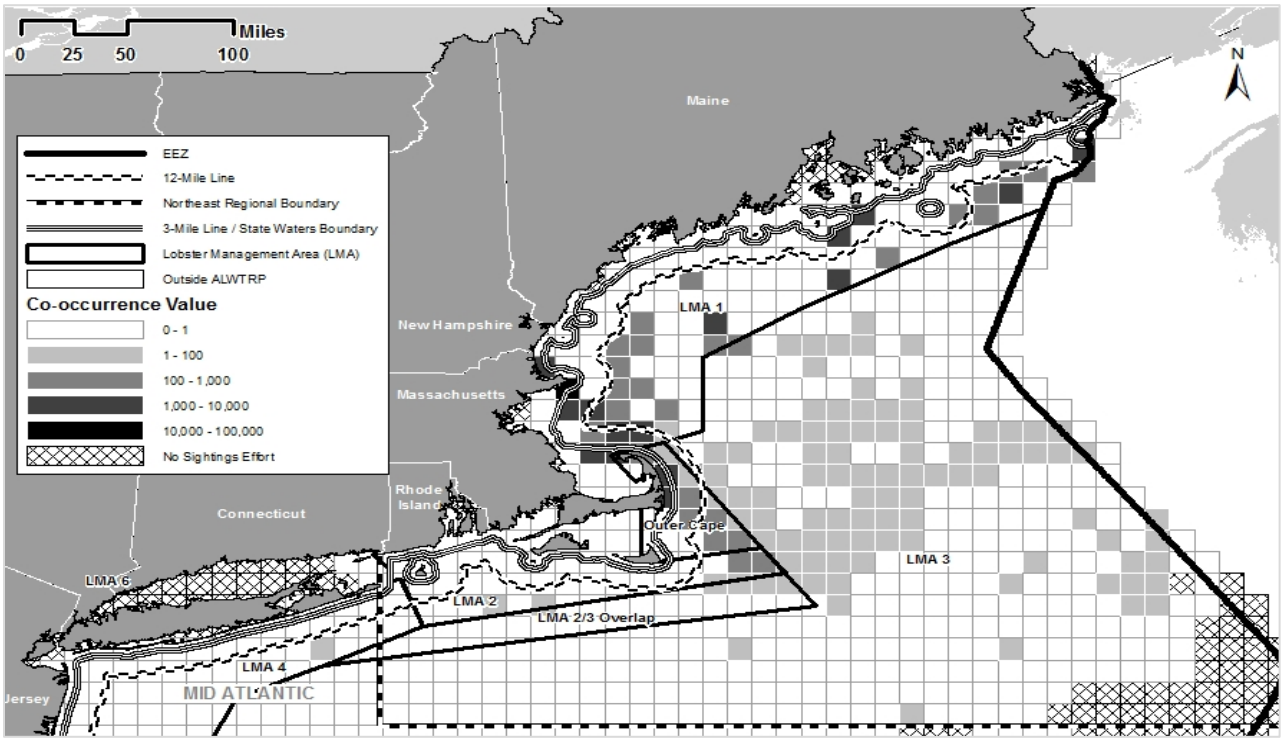
JUNE – CO-OCCURRENCE BASED ON SPUE



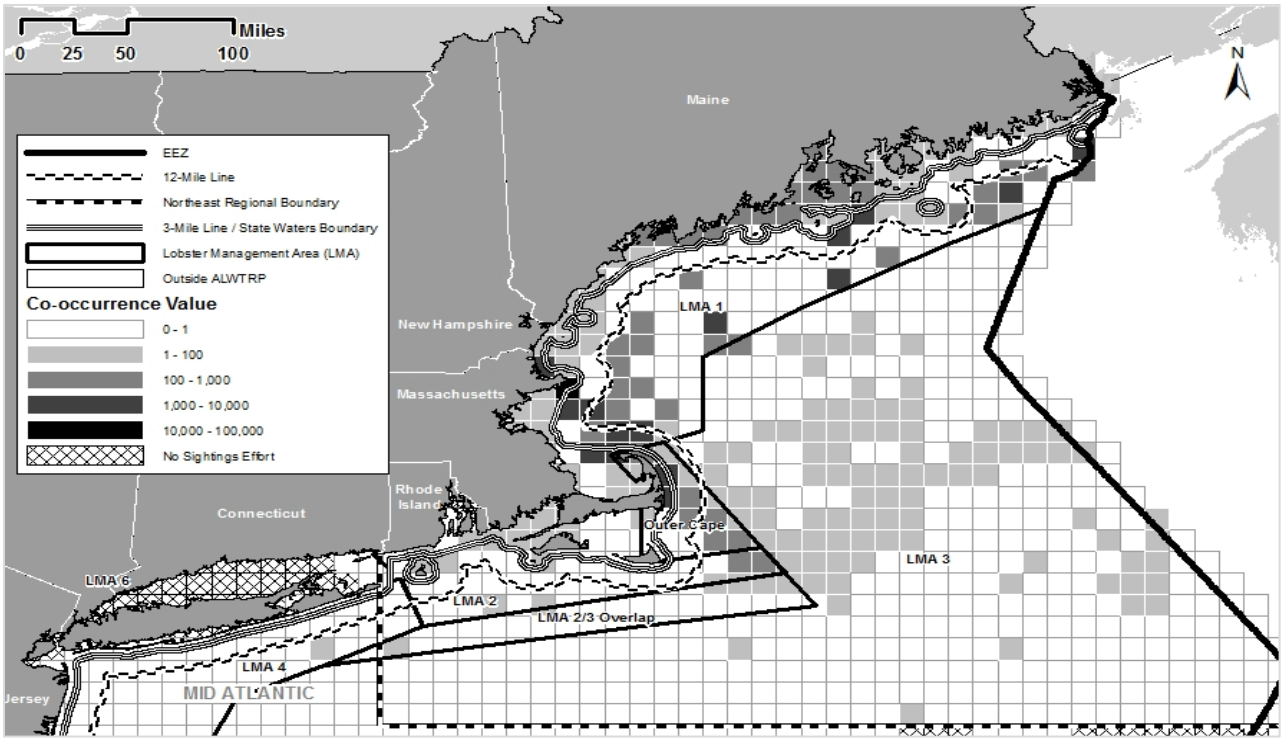
JUNE – CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



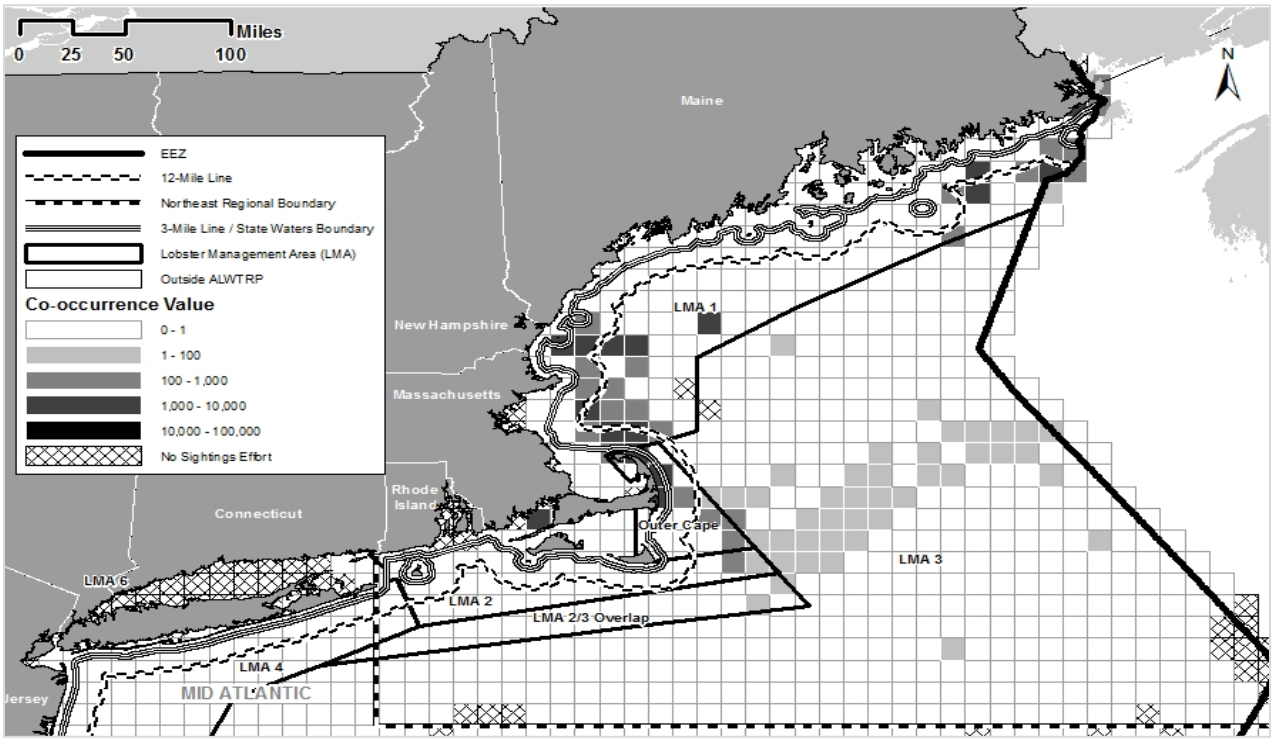
JULY – CO-OCCURRENCE BASED ON SPUE



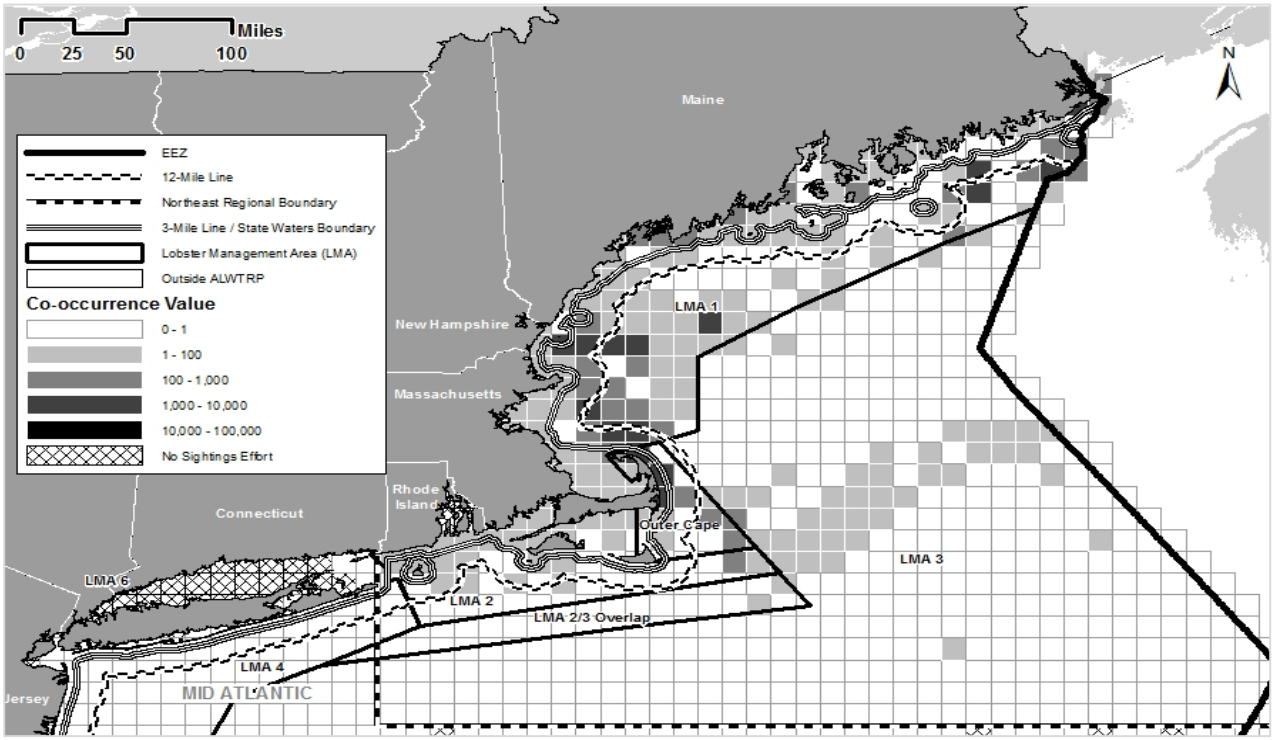
JULY – CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



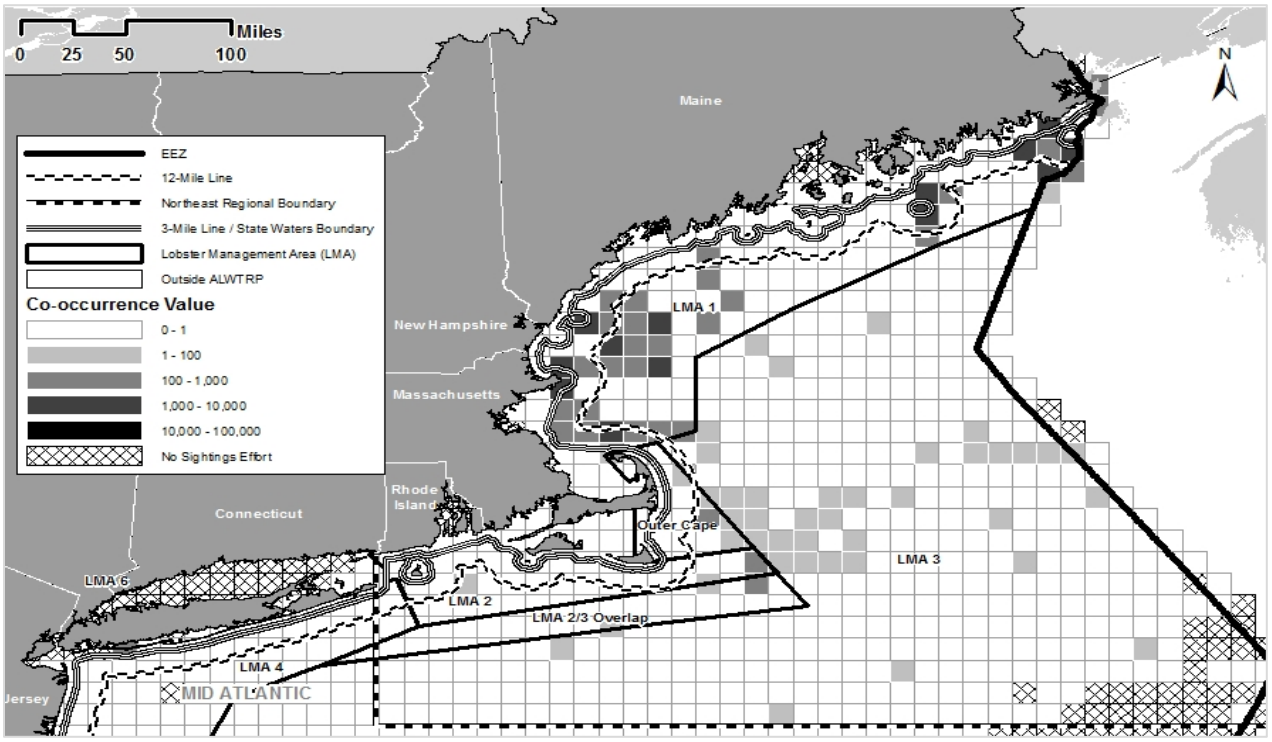
AUGUST – CO-OCCURRENCE BASED ON SPUE



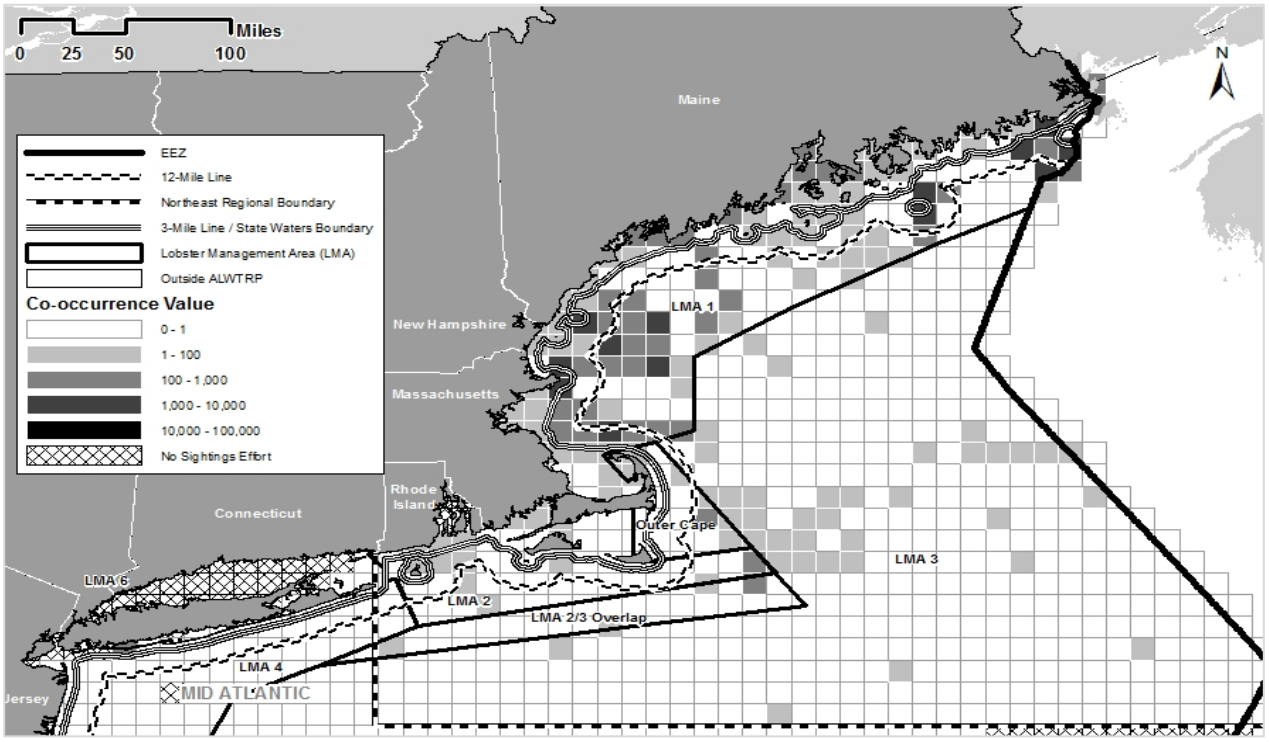
AUGUST – CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



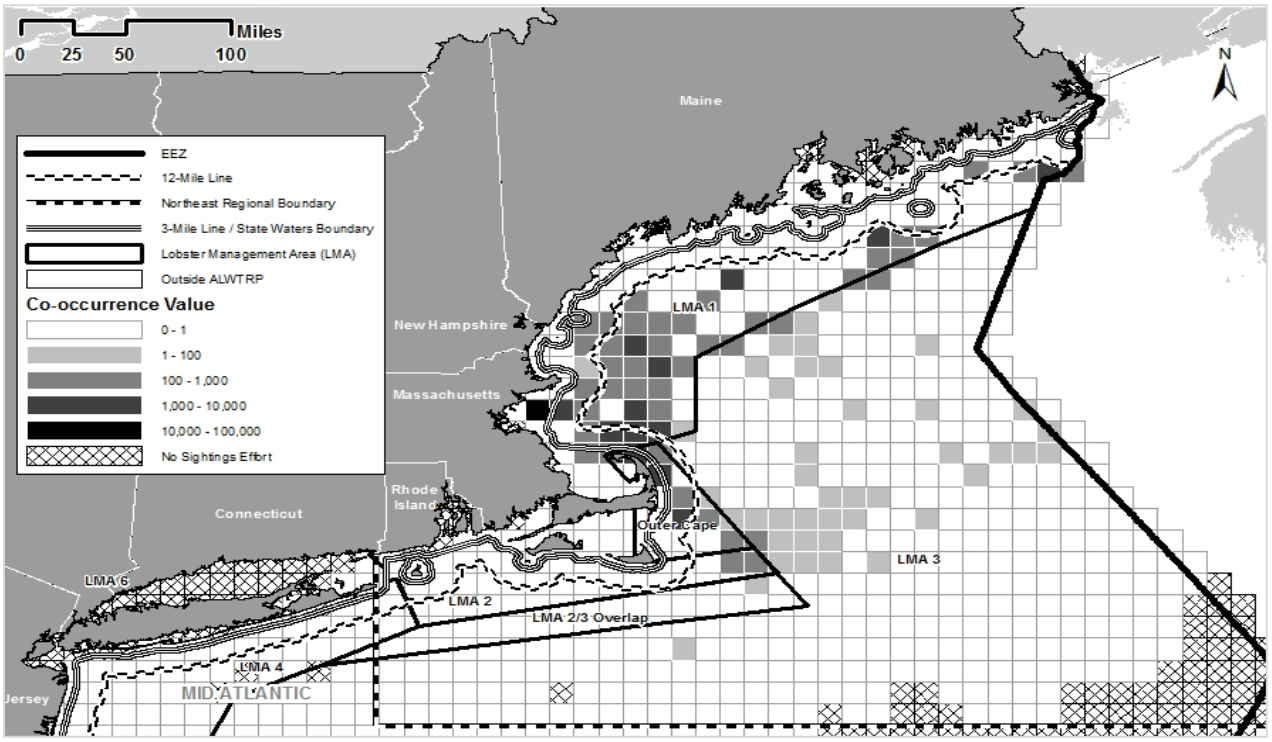
SEPTEMBER – CO-OCCURRENCE BASED ON SPUE



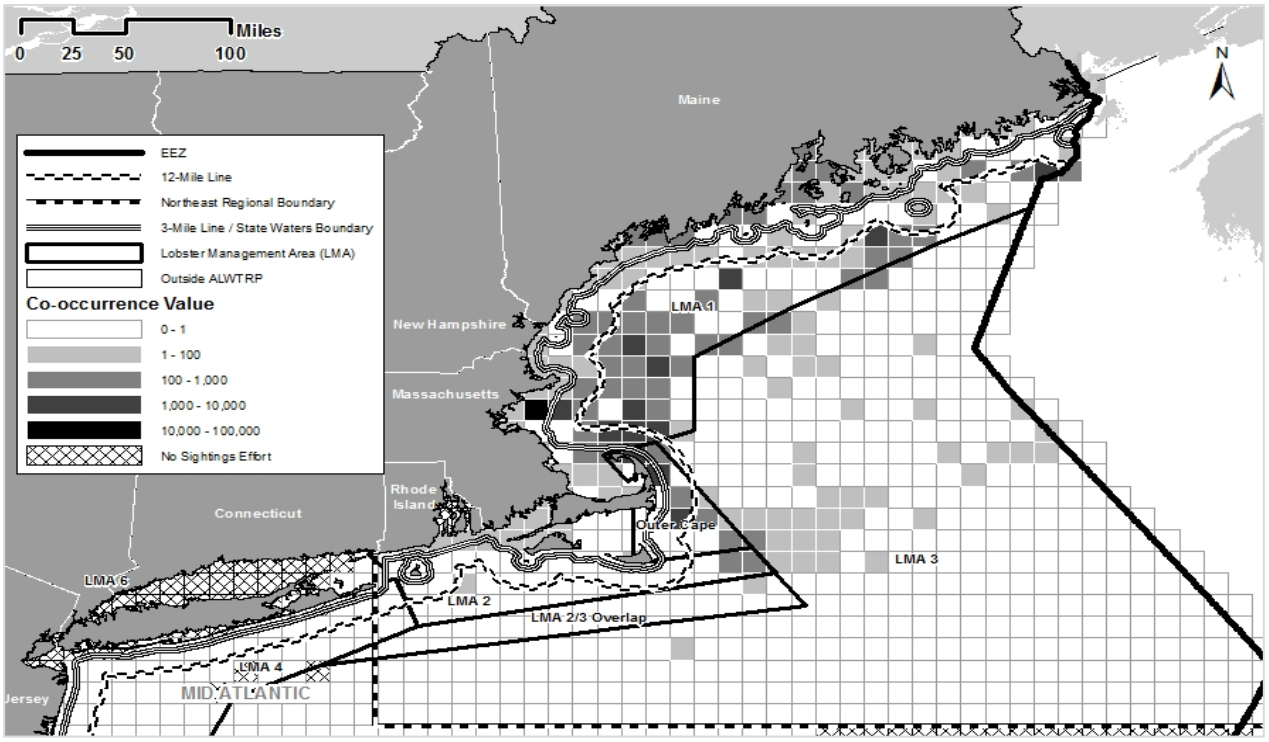
SEPTEMBER – CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



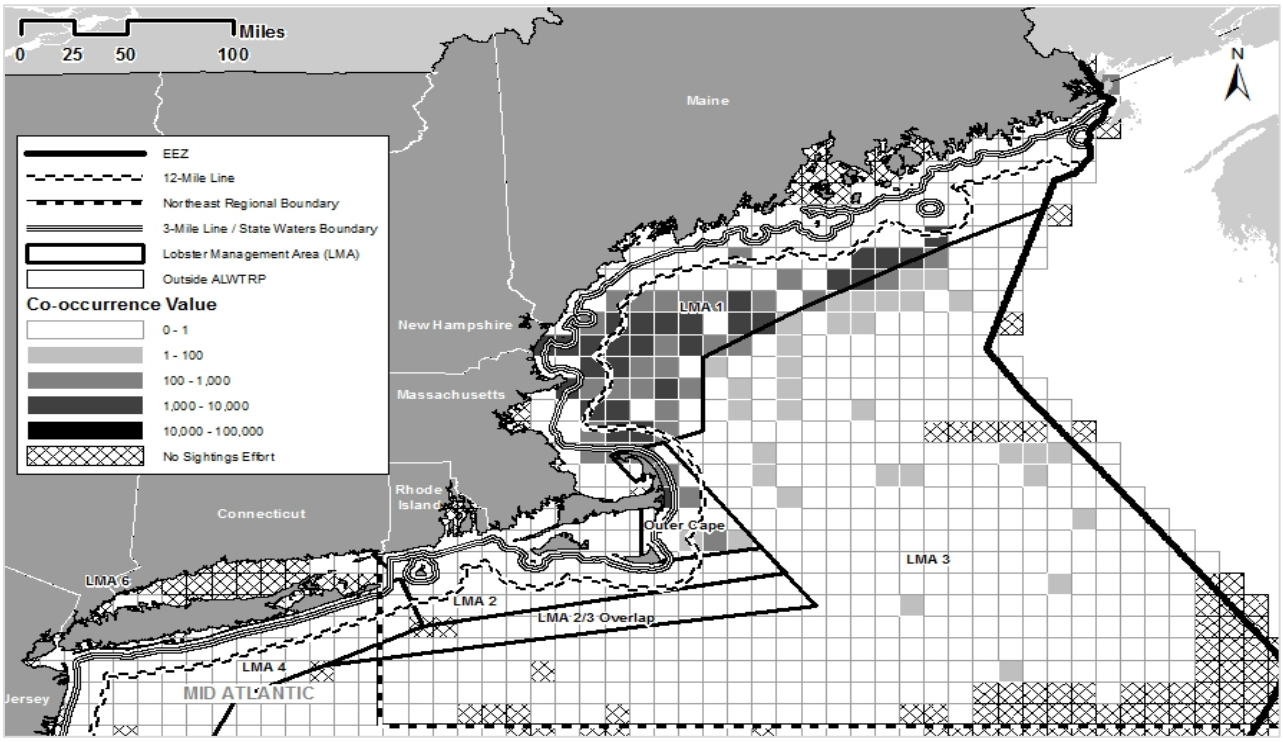
OCTOBER – CO-OCCURRENCE BASED ON SPUE



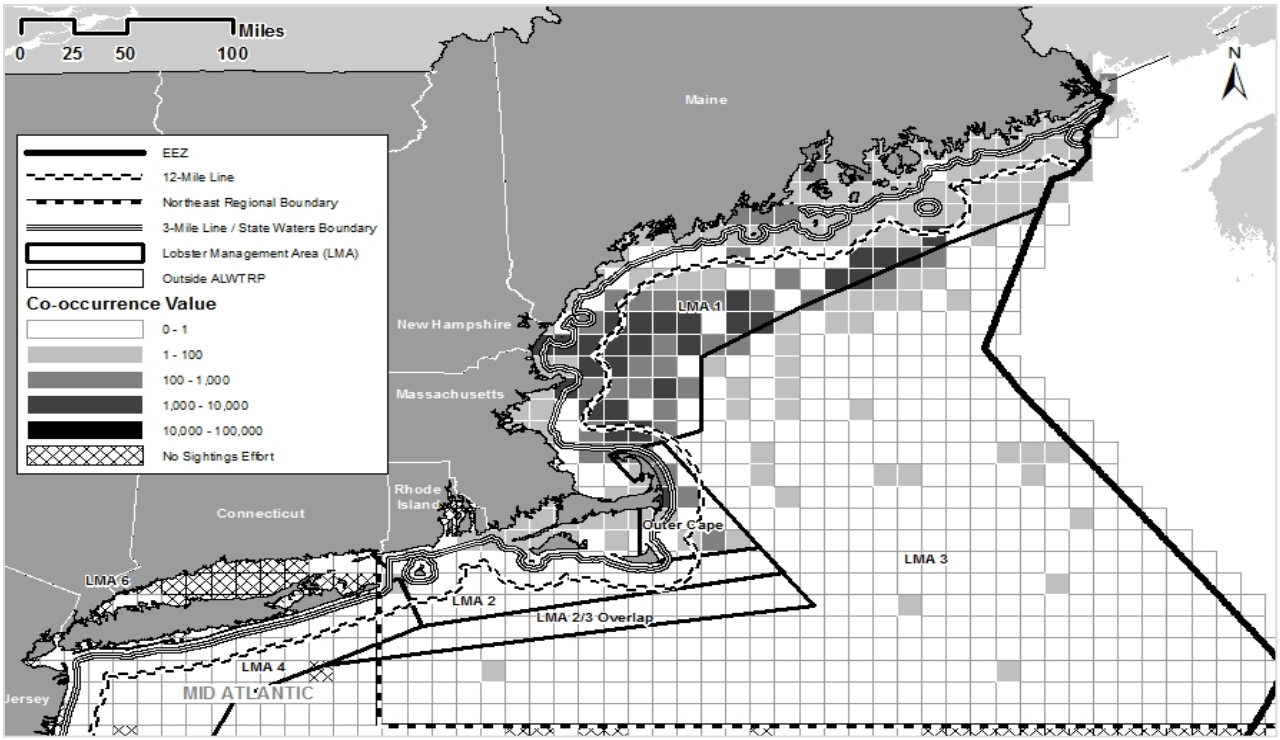
OCTOBER – CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



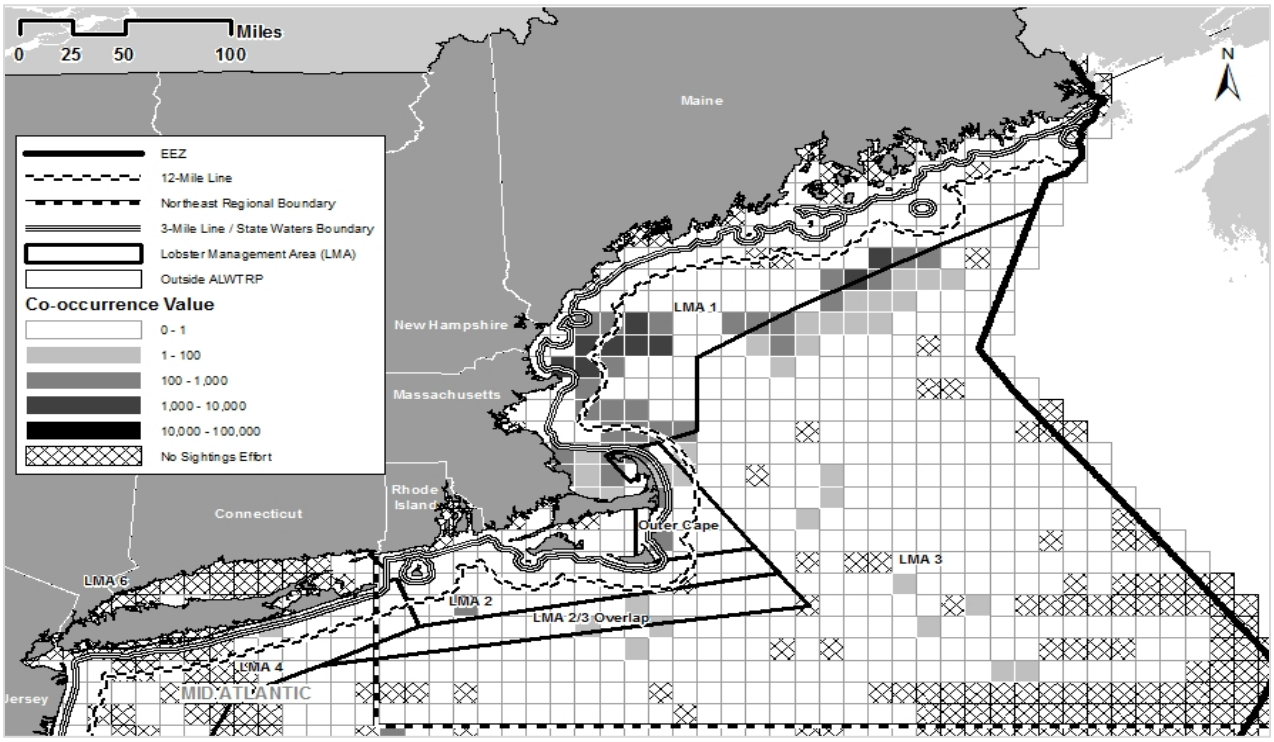
NOVEMBER – CO-OCCURRENCE BASED ON SPUE



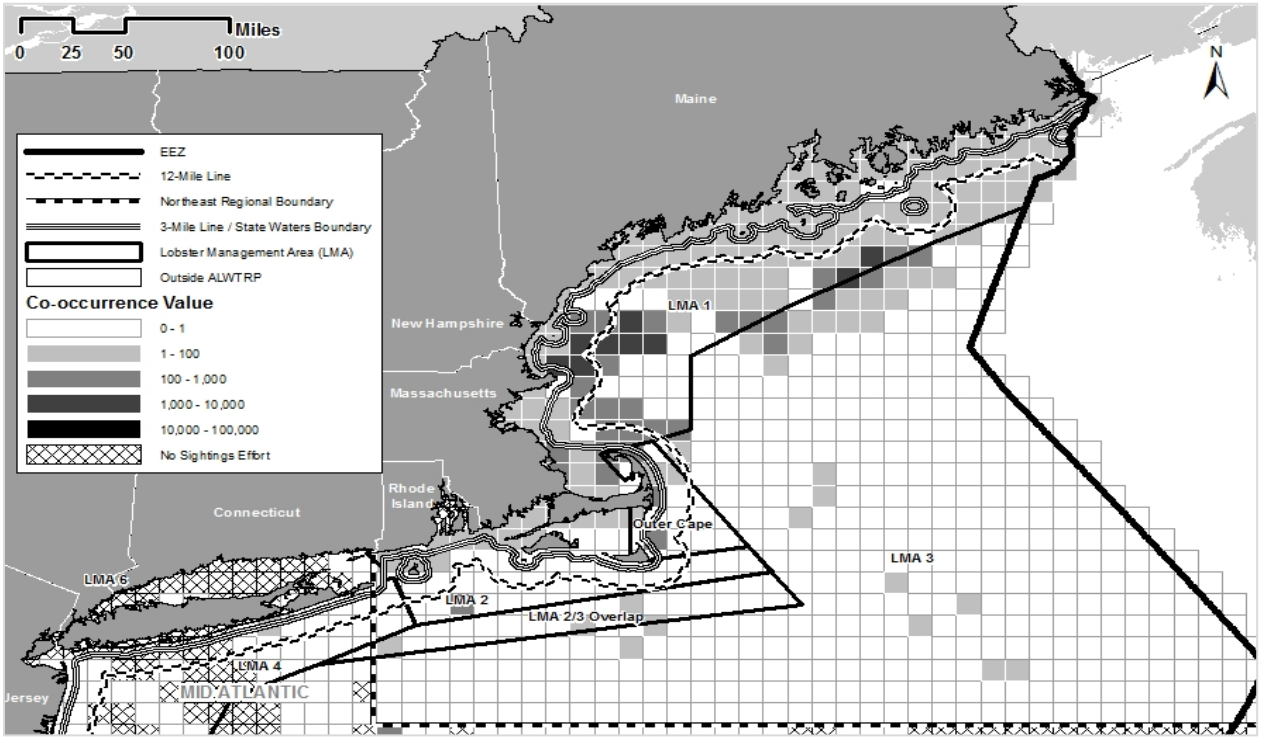
NOVEMBER – CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



DECEMBER – CO-OCCURRENCE BASED ON SPUE



DECEMBER- CO-OCCURRENCE BASED ON ADJUSTED SIGHTINGS



ATTACHMENT 5B-3

IMPACT OF REGULATORY ALTERNATIVES ON COASTWIDE CO-OCCURRENCE SCORES: COMBINED RIGHT/HUMPBACK WHALE

Table 5B-1

ANALYSIS BASED ON ORIGINAL SPUE VALUES

Alternative	Impact of Alternatives on Annual Co-Occurrence Score (Percent Change from Baseline)			
	Non-Exempt Waters		All Waters	
	Lower Bound Scenario	Upper Bound Scenario	Lower Bound Scenario	Upper Bound Scenario
Alternative 2	-35.8%	-35.8%	-34.2%	-34.2%
Alternative 3	-37.4%	-37.2%	-35.7%	-35.4%
Alternative 4	-40.5%	-38.7%	-38.6%	-36.9%
Alternative 5	-41.7%	-39.7%	-39.7%	-37.9%
Alternative 6 (Draft)	-38.0%	-37.4%	-36.2%	-35.7%
Alternative 6 (Preferred)	-37.9%	-37.4%	-36.2%	-35.7%

Table 5B-2

ANALYSIS BASED ON ADJUSTED SIGHTINGS VALUES

Alternative	Impact of Alternatives on Annual Co-Occurrence Score (Percent Change from Baseline)			
	Non-Exempt Waters		All Waters	
	Lower Bound Scenario	Upper Bound Scenario	Lower Bound Scenario	Upper Bound Scenario
Alternative 2	-35.6%	-35.6%	-32.6%	-32.6%
Alternative 3	-37.1%	-36.9%	-34.0%	-33.7%
Alternative 4	-40.3%	-38.5%	-36.9%	-35.2%
Alternative 5	-41.4%	-39.4%	-37.8%	-36.1%
Alternative 6 (Draft)	-37.7%	-37.2%	-34.5%	-34.0%
Alternative 6 (Preferred)	-37.7%	-37.2%	-34.5%	-34.0%

Table 5B-3

NET EFFECT OF USING ADJUSTED SIGHTINGS VALUES

Alternative	Net Impact on Annual Co-Occurrence Score Achieved by Each Regulatory Alternative			
	Non-Exempt Waters		All Waters	
	Lower Bound Scenario	Upper Bound Scenario	Lower Bound Scenario	Upper Bound Scenario
Alternative 2	+0.2%	+0.2%	+1.6%	+1.6%
Alternative 3	+0.3%	+0.3%	+1.7%	+1.7%
Alternative 4	+0.2%	+0.2%	+1.8%	+1.7%
Alternative 5	+0.3%	+0.3%	+1.9%	+1.8%
Alternative 6 (Draft)	+0.2%	+0.2%	+1.7%	+1.6%
Alternative 6 (Preferred)	+0.2%	+0.2%	+1.7%	+1.6%
Note: Apparent discrepancies between the figures shown in Tables 5B-1 and 5B-2 and the net effect shown in Table 5B-3 are due to rounding in the display of values.				

ECONOMIC IMPACTS CHAPTER 6

6.1 INTRODUCTION

The regulatory alternatives under consideration would subject commercial fishermen operating in fisheries covered by the ALWTRP to a number of new requirements. These include:

- *Minimum trawl-length standards*, which would apply to the lobster, blue crab, and other trap/pot (OTP) fisheries in the plan's Northeast waters;
- New *gear configuration requirements*, which would apply to trap/pot fisheries in the plan's Southeast waters;
- *Seasonal closure* of designated areas in the Northeast to trap/pot gear; and
- New *gear marking* requirements, which would apply to regulated fisheries in all waters that are subject to the ALWTRP, as well as some areas that are exempt from other ALWTRP requirements.

Complying with these requirements is likely to impose additional costs on commercial fishermen and, in some instances, to have an adverse impact on their revenues. If these impacts are large, it is possible that some fishermen may switch their effort to other fisheries or cease fishing entirely.

The following discussion describes the methods used to estimate the costs that commercial fishermen would incur in complying with potential modifications to the ALWTRP and presents the results of this analysis. These cost estimates represent the direct impact of new regulations on the commercial fishing industry. They also provide a foundation for subsequent evaluation of the regulations' potential effect on commercial fishing activity, and of the implications of such effects for communities that depend on the commercial fishing industry (see Chapter 7). The discussion is organized as follows:

- Section 6.2 describes the data sources and methodology employed to estimate compliance costs associated with minimum trawl-length and other gear configuration requirements;

- Section 6.3 describes the data sources and methodology employed to characterize the economic impact of the seasonal closure of certain areas to trap/pot gear;

- Section 6.4 describes the methods used to estimate the compliance costs associated with gear marking requirements;

- Section 6.5 presents the resulting estimates of compliance costs for each regulatory alternative; and

- Section 6.6 describes the distribution of estimated costs by fishery.

The analysis examines the costs of each regulatory alternative in a social welfare framework, focusing on potential changes in producer and consumer surplus. In the context of this analysis, producer surplus is the difference between the revenues that fishermen receive for their catch and the economic costs incurred in harvesting it. Similarly, consumer surplus is the difference between the maximum amount that consumers would be willing to pay for the catch and the price they actually pay. Any reduction in consumer or producer surplus represents a loss of economic welfare, and thus, a cost to society.

The analysis measures the cost of complying with new regulatory requirements relative to Alternative 1, the no action alternative; it does not address the cost of complying with ALWTRP requirements already in place. This is not to imply that implementation of the ALWTRP's current requirements is costless. Commercial fishermen clearly incur costs to meet current standards. The economic analysis, however, is designed to measure costs on an incremental basis – i.e., to measure the *change* in costs associated with a *change* in regulatory requirements. If no change in regulatory requirements is imposed – as would be the case under Alternative 1 – the costs of complying with the ALWTRP would remain unchanged. Thus, the incremental cost of the no action alternative is zero.

Much of the analysis described in this chapter builds on the foundation provided by NMFS' Vertical Line Model. As discussed earlier in this EIS, the model integrates information on fishing activity, gear configurations, and whale movements to provide indicators of the potential for entanglements to occur at various locations and at different points in time. The costs that the management measures under consideration might impose depend on the fishery (or fisheries) in which a vessel participates; the seasons and locations in which a vessel operates; the regulations to which it is already subject; and the current configuration of the vessel's gear. The Vertical Line Model specifies operating assumptions for groups of vessels that hold these key features in common, providing an important starting point for assessing economic impacts. The role of the model in the analysis of economic impacts is described in detail below; readers interested in additional information on the model's structure or the data, assumptions, and methods it employs should consult the model's formal documentation, which is available for review on the ALWTRP website (http://www.nero.noaa.gov/Protected/whaletrp/index.html).

6.2 ANALYTIC APPROACH: GEAR CONFIGURATION REQUIREMENTS

A major component of Alternatives 2 through 6 (Preferred) is a minimum trawl length requirement – i.e., prohibiting trawls of less than a specified number of traps or pots – for trap/pot fisheries in Northeast waters. The exact nature of this requirement varies by alternative and location. The costs that fishermen are likely to incur in complying with such requirements fall into several categories:

- **Gear Conversion**: Vessels fishing shorter configurations (e.g., singles, doubles) would need to reconfigure their gear to comply with trawling requirements. These changes may require expenditures on new equipment as well as investments of fishermen's time.

- **Catch Impacts**: Catch rates may decline for vessels that are required to convert from shorter sets to longer trawls, reducing the revenues of affected operations.

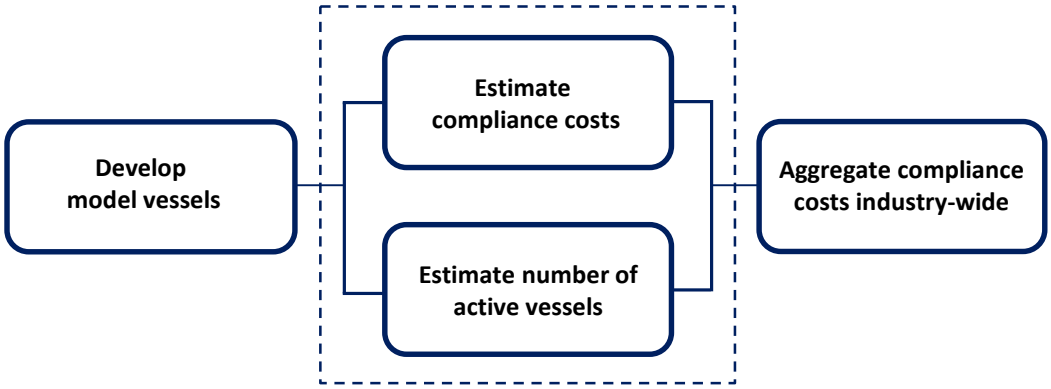
- **Other Impacts**: Some vessels that shift to longer trawls may experience changes in the rate at which gear is lost. In addition, some fishermen may need to modify their vessels or add crew to handle longer trawls.

Given the broad scope of the ALWTRP, a vessel-by-vessel analysis of the costs of complying with these requirements is infeasible. Instead, the analysis is based upon the model vessels defined in the Vertical Line Model. Each model vessel represents a group of vessels that fish in the same area, share other operating characteristics, and would face similar requirements under a given regulatory alternative. As Exhibit 6-1 illustrates, the analysis estimates regulatory compliance costs for each model vessel. This cost estimate is then applied to the population of active vessels that the model represents, and aggregated across this population to estimate regulatory compliance costs for all vessels in a given category.[1] The sum of costs across all vessel categories provides an estimate of regulatory compliance costs for the commercial fishing industry as a whole.

[1] The population of active vessels that a model vessel represents is based in part on vessel trip reports that indicate the location of fishing activity. Some vessels report activity in multiple areas in a given month. To avoid double-counting in such cases, the analysis assigns the vessel's activity to each area in proportion to the distribution of trips it reports. For example, if over the course of a month a vessel reports seven trips to Area A and three trips to Area B, the analysis will assign 0.7 active vessels to Area A and 0.3 active vessels to Area B. Thus, all estimates of the number of vessels active in a given area are reported on a full-time equivalent basis; the number of vessels that fish a portion of their gear in the area each month may be higher. The documentation for the Vertical Line Model provides additional information on this issue.

Exhibit 6-1

ECONOMIC IMPACT ASSESSMENT METHODOLOGY



6.2.1 Development of Model Vessels

The first step in analyzing the impacts of trawling requirements is to define the relevant suite of model vessels, i.e., groups of vessels that operate in a similar fashion and thus are likely to face similar compliance costs. The regulations currently imposed under the ALWTRP vary by fishery, location, and time of year. Potential modifications to the ALWTRP, as embodied in the regulatory alternatives under consideration, would follow a similar approach. Thus, compliance costs are likely to vary depending upon the fishery in which a vessel participates, the location in which it operates, and the seasons in which it is active. The model vessels employed in the cost analysis are designed to capture these differences.

In addition, the model vessels are designed to take into account differences in compliance costs that would result from the nature, configuration, and quantity of gear that vessels employ. For example, some lobster vessels fishing in a given region may configure their traps/pots in pairs, while others may already use longer trawls; since this difference could have a significant impact on the costs of complying with trawling requirements, it is important that the cost analysis differentiate between such vessels. Similarly, the configuration of gear and operating characteristics of vessels participating in other trap/pot fisheries could vary significantly depending upon the species they target. For example, vessels that target black sea bass and those that target conch employ different configurations of gear, and thus are likely to face different compliance costs. Again, it is important to differentiate between such vessels in the cost analysis.

Analysis of the economic impact of the trawling requirements requires comparing the baseline configuration of gear assigned to model vessels in the Vertical Line Model with the new configuration of gear that would be required under each regulatory alternative. This procedure allows assessment of compliance costs for the full suite of possible outcomes. For instance, for the set of lobster vessels fishing in non-exempt state waters in Maine Lobster Zone B, the Vertical Line Model identifies 36 possible gear configuration options, as defined by a matrix that

specifies both the number of traps fished (four categories) and the number of traps per trawl (nine categories). The model relies on survey data to characterize the baseline distribution of gear configurations within this matrix. The cost analysis then identifies the gear configurations that would be prohibited under each regulatory alternative; vessels that currently fish sets shorter than the required minimum would need to reconfigure their gear. The *difference* between the baseline configuration and the new configuration of gear that each regulatory alternative would require (which varies by area and alternative) drives the analysis of gear conversion costs; thus, estimates of compliance costs for vessels that are subject to identical requirements will vary depending upon the configuration of gear they currently employ. As described below, the cost analysis takes into account a broad range of "before and after" gear configuration options.

6.2.2 Gear Conversion Costs

When vessels convert from shorter sets to longer trawls, one impact is the direct cost of converting gear to the new configuration. These costs include two major elements:

- **Equipment Costs**: Fishing traps in a new configuration may require the use of new equipment. For instance, the use of longer trawls is likely to require additional groundline. These costs may be offset, at least in part, by a reduction in the use of other types of equipment, such as a reduction in the use of vertical line, buoys, etc.

- **Labor Costs**: The costs of converting gear include the implicit value of the time that fishermen spend reconfiguring their equipment.

Exhibit 6-2 illustrates the methodology employed to estimate these costs. As shown, for each regulatory provision applicable to a group of vessels, the analysis identifies new gear conversion requirements (i.e., modifications that are not already specified under existing rules), estimates the material and labor required to bring all gear into compliance, and calculates the resulting cost. For each provision, equipment costs are a function of the quantity of gear to be converted and the unit cost of the materials needed to satisfy the trawling requirement. Labor costs are a function of the time required to implement a specific modification, the quantity of gear to be converted, and the implicit labor rate. All costs are calculated on an incremental basis, taking into account any savings in equipment costs that might result from efforts to comply with new ALWTRP regulations. The discussion below further describes how these costs are estimated.

6.2.2.1 Equipment Costs

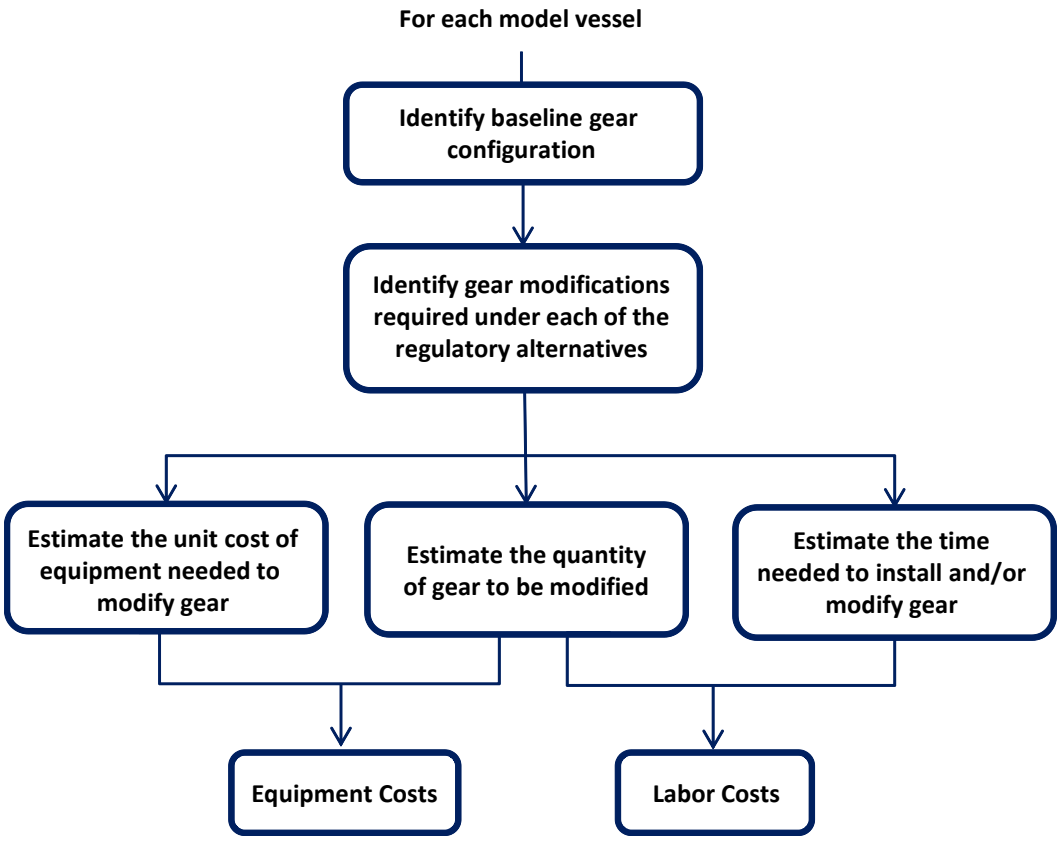
Vessels that switch to longer trawls as a result of new ALWTRP requirements will incur costs for new equipment, but may also realize savings on components of gear that the new configuration would use less extensively or eliminate entirely. For example, under Alternative 2, the use of singles or doubles in the regulated state waters portion of Maine Lobster Zone B would be prohibited; trap/pot vessels that currently fish singles or doubles would need to switch to trawls of no fewer than three traps in order to comply with the alternative's requirements. The analysis assumes that the affected vessels would switch to the minimum set length the new requirements would permit – in this case, triples. For vessels that previously fished doubles, this implies an increase in the quantity of groundline and a decrease in the quantity of vertical line

employed. It also implies a decrease in the number of buoys and other gear elements (e.g., weak links) associated with each set. To capture this dynamic, the gear cost analysis compares "before" and "after" gear configurations for each category of affected vessels, identifying the impact of each regulatory alternative on the gear that vessels in that category would employ.

The equipment cost that vessels would incur is also a function of the total number of traps that must be reconfigured. For each model vessel, the cost model itemizes changes in the quantity of all gear elements based on the maximum number of traps fished at any point during the year. In this way, the estimate of gear conversion costs for each model vessel reflects the cost of reconfiguring all of its gear, not just the subset of traps it may fish in a particular month.

Exhibit 6-2

METHODOLOGY USED TO CALCULATE GEAR CONVERSION COSTS



Gear specifications for each model vessel are customized to the relevant fishing area. The specification of baseline gear use is consistent with typical practices and existing regulatory requirements, while the specification of gear use under each regulatory alternative is based on an

assessment of the changes needed to comply with the new requirements. The factors considered in each case include:

- set configuration (i.e., the number of traps and number of endlines per trawl);
- the depth at which gear is typically set, combined with a vertical line slack factor (to define vertical line length);
- vertical line diameter;
- vertical line composition (i.e., the percent of vertical line that is sinking line);
- buoy system features (buoy size, number, and type);
- the number of anchors (if any) per set;
- the length and diameter of any anchor lines;
- the distance between traps on a trawl (to define groundline length); and
- groundline diameter.[2]

Appendix 6-A details how these parameters vary by fishing area. As explained in the appendix, many of these parameters are based on information provided in McCarron and Tetreault (2012). Additional specifications draw on data provided by state fisheries managers to support development of the Vertical Line Model.

To evaluate the net change in equipment costs associated with fishing longer trawls, the analysis incorporates unit cost information gathered from marine supply retailers. The unit cost estimates represent the average of prices quoted by two major marine supply retailers in the northeast, Friendship Trap and New England Marine and Industrial. This price information was gathered via searches of on-line catalogs as well as personal communication with company representatives. Supplementary information from other retailers provides prices for miscellaneous gear elements.

Fishermen would incur the change in equipment costs when new requirements go into effect, and on an ongoing basis thereafter. To appropriately reflect the opportunity costs associated with such investments, the analysis presents these costs on an annualized basis. The cost model develops the annual cost of the "before" and "after" gear configurations based on standard discounting procedures, employing estimates of the useful life of each gear element. These estimates were developed with guidance from NMFS gear specialists. The calculation of annualized costs is based on a real annual discount rate of seven percent, consistent with current Office of Management and Budget guidelines. All costs are reported in 2011 dollars.

[2] The analysis assumes that groundline employed in non-exempt waters is sinking line, consistent with the ALWTRP's current requirements.

Appendix 6-A summarizes the unit prices and useful life estimates compiled for all gear elements.

6.2.2.2 Labor for Gear Conversion and Associated Costs

In addition to equipment costs, converting trap/pot gear to longer trawls would require an investment of fishermen's time. The following discussion summarizes the assumptions the analysis employs to estimate the amount of time fishermen are likely to spend reconfiguring their gear, as well as the method used to estimate the implicit value of their time.

Labor for Gear Conversion

Numerous factors may influence the amount of time a fisherman is likely to spend on gear conversion, including:

- The individual's skill and experience;
- The complexity of the reconfiguration required;
- Whether gear is reconfigured on shore or at sea;
- For reconfiguration at sea, the distance between sets;
- The availability of a sternman to assist with the work; and
- The method (knots, splicing, etc.) used to string traps together into trawls.

In the absence of data to support characterization of all of these factors, the labor cost analysis applies a simplified method. Following the recommendation of NMFS gear specialists, the analysis assumes 15 minutes of labor for each trap that must be converted to a new configuration, based on the assumption that the reconfiguration will be performed at sea.[3] To determine the number of traps that must be converted, the analysis first calculates, for each model vessel, the number of sets that the new configuration will accommodate. Using the model vessel's baseline gear configuration as a starting point, it then calculates the number of traps that must be added to each set to reach the target set length. For example, assume as a starting point a model vessel that under baseline conditions fishes 400 sets of doubles (a total of 800 traps), but under a given regulatory alternative would be required to fish trawls of at least five traps. In this case:

- The regulatory alternative will accommodate 160 sets of 5-trap trawls (800/5 = 160);
- The analysis takes as a starting point 160 sets of doubles (320 traps);

[3] Personal communication with NMFS gear specialists, September 24, 2012.

- The remaining 480 traps must be added to these sets to create five-trap trawls;

- At 15 minutes per trap, the analysis estimates that 120 labor-hours would be required to reconfigure the 480 traps (480 traps times 0.25 hours per trap).

While this approach is highly simplified, it is intended to encompass the suite of considerations noted above. In addition, because it is based upon an estimate of the time required to reconfigure gear at sea, it is designed to be more conservative (i.e., to yield a higher cost estimate) than would be the case if the analysis assumed that the reconfiguration of gear occurred on shore.

Labor Cost

The cost model assigns an implicit value to fishermen's time based on labor rates in professions they would pursue if not involved in fishing. Economists refer to this concept as the "opportunity cost" of time. To identify alternative professions, the analysis relies on responses provided to a survey administered by the Gulf of Maine Research Institute in 2005 (GMRI, 2006). The GMRI survey asked a sample of 1,158 randomly selected lobstermen a variety of questions regarding education, vessel characteristics, fishing effort, and other aspects of their work. Compiled and published in 2006, the survey findings guide a number of assumptions in the cost and socioeconomic analysis presented in this EIS.

When asked about alternative professions, the GMRI survey respondents most commonly indicated that they would be involved in carpentry, other trades, vessel maintenance, merchant marine activity, or another aspect of commercial fishing (i.e., harvesting other species, boat maintenance). Exhibit 6-3 summarizes the responses.

The cost analysis uses the distribution of responses to develop a weighted average wage rate that reflects the opportunity cost of a fisherman's time. First, the analysis normalizes the survey responses, eliminating the indeterminate or non-relevant responses ("other", "don't know" and "retire"). The analysis then matches the alternative occupations with Bureau of Labor Statistics (BLS) occupational categories, developing a simple average wage rate for each occupation (or group of occupations) based on the May 2011 mean hourly wage rate reported by BLS. For instance, the survey response "carpentry/trades/mechanic" is assigned an average wage rate based on the rates that BLS reports for "Carpenters" and for "Automotive Service Technicians and Mechanics". Finally, the analysis weights the wage rates by the distribution of survey responses to estimate an average opportunity cost of $22.48 per hour.

Exhibit 6-3

CALCULATION OF THE IMPLICIT VALUE OF A TRAP/POT FISHERMAN'S TIME

Alternative Occupation	Percent of Respondents That Identified Alternative[1]	Normalized Distribution of Responses	Average Wage Rate	BLS Occupational Categories Incorporated into Average Wage Rate
Carpentry/Trades/Mechanic	28%	41%	$19.93	Carpenters; Automotive Service Technicians and Mechanics
Other Commercial Fishing/Merchant Marine/Boat Building and Maintenance	26%	38%	$21.37	Fishers and Related Fishing Workers; Motorboat Mechanics; Sailors and Marine Oilers; Captains, Mates, and Pilots of Water Vessels
Other Business	8%	12%	$33.05	Business and Financial Operations Occupations
Truck Driver/Equipment Operator	3%	4%	$20.57	Heavy and Tractor-Trailer Truck Drivers; Operating Engineers and Other Construction Equipment Operators
Education	2%	3%	$24.46	Education, Training, and Library Occupations
Police/Firefighter/EMT/Military	1%	1%	$22.12	Police and Sheriff's Patrol Officers; Firefighters; Emergency Medical Technicians and Paramedics
Engineering	1%	1%	$40.17	Mechanical Engineers
Other	10%	N.A.	**Weighted Average: $22.48**	
Retire	2%	N.A.		
Don't Know	16%	N.A.		

Notes:

1. Because the survey permitted multiple responses, these figures do not sum to 100 percent.

Sources: GMRI, 2006; BLS Occupational Employment Statistics.

The analysis uses this wage rate to characterize the opportunity cost for lobstermen and fishermen who spend time reconfiguring their gear under the proposed requirements.[4] For purposes of expressing compliance costs on an annualized basis, the analysis assumes that labor costs would be incurred when the regulations take effect, and amortizes them over a period of five years. This period reflects the approximate length of the ALWTRP's regulatory review cycle.

6.2.2.3 Caveats and Uncertainties

The discussion above highlights several key assumptions in the analysis of gear conversion costs. Chief among these are (1) the specific baseline configurations and gear elements used in each fishing area; (2) the cost and useful life of various gear elements; (3) the amount of labor needed to convert short sets to longer trawls; and (4) the implicit value of fishermen's time. There are uncertainties associated with each of these assumptions, but the overall direction of any potential bias in the resulting estimates of gear conversion costs is unclear.

It is noteworthy that the analysis of gear conversion costs results in net cost savings for some groups of vessels. This occurs when trawling implies lower expenditures on key gear elements. For instance, vessels fishing in the Federal waters of Lobster Management Area (LMA) 1 are likely to employ relatively sophisticated and expensive buoy systems. If trawling reduces the number of sets fished and the number of buoys used, the result is reflected as a net cost savings, even after accounting for investments of time needed to reconfigure gear. While the analysis incorporates these impacts, it also recognizes the potential for other costs – in particular, adverse impacts on catch rates – to offset any savings implied by estimates of changes in gear costs. The following section discusses these impacts in greater detail.

6.2.3 Catch Impacts Associated with Trawling Requirements

The analysis of compliance costs associated with trawling requirements recognizes the potential for impacts on landings under certain conditions. Fishermen use singles and other short sets for a variety of reasons. In some cases, short sets may allow fishermen to target especially productive bottom structure where longer trawls may be inefficient or difficult to haul (e.g., because of fouling on bottom structure). This advantage may be most prevalent in rocky habitats, including those around islands. Second, short sets can be distributed more widely than trawled traps. Wide distribution may aid in the search for the target species. Likewise, wide distribution may reduce competition between traps, increasing the catch per unit of effort.

Data to support a quantitative analysis of trawling effects on catch are extremely limited. Because multiple factors influence catch rates (gear configuration, gear density, the abundance of the target species, bottom structure, soak time, individual skill, etc.), it is difficult to isolate the effect of trawl configuration on catch. The Maine Department of Marine Resources (DMR)

[4] The approach the analysis employs to value the opportunity cost of time treats the time required to comply with new ALWTRP requirements as time that would otherwise be invested in productive activity, rather than leisure. This approach provides a conservative (i.e., higher) estimate of the cost of complying with new regulations.

developed and implemented a project designed, in part, to assess the impacts of longer trawls on catch in the lobster fishery (DMR, 2012). Participants hauled roughly 2,300 sets of gear in control configurations (singles and doubles) and 835 sets of gear in trawls ranging from triples to tens. The research found no statistically significant reduction in catch per trap when comparing the control configurations to the experimental configurations.

Despite this finding, industry experts believe it is possible, and in some instances likely, that changes in gear configuration could have an adverse impact on catch. Experts from the Massachusetts Division of Marine Fisheries, for example, have called attention to the potential for catch impacts in the inshore lobster fishery around Cape Cod, where single traps are routinely fished.[5] Research has demonstrated that the optimal spacing of lobster traps depends upon the abundance of lobster in an area; the greater the density of lobster, the greater the density of traps that can be fished without an adverse impact on catch per trap (Schreiber, 2010). The use of singles in the Cape region is partly attributable to this dynamic. The density of lobsters in these waters is lower than it is off the Maine coast; under these conditions, traps that are placed relatively close together – as would be the case when fishing trawls – are more likely to compete with one another in attracting lobsters. As a result, traps fished in trawls around the Cape might be less productive than traps fished as singles.[6]

Lacking any systematic data linking gear configuration and catch rate, the analysis applies a simplified approach to characterize potential impacts. To recognize the potential for catch impacts to be greater when gear configurations change markedly, it first classifies affected vessels into two categories:

- **Category A** – Those subject to relatively large increases in trawl length, defined as an increase of a factor of two or more in the number of traps in each set; and

- **Category B –** Those subject to smaller increases in the number of traps in each set.

The analysis then incorporates two scenarios designed to provide a reasonable estimate of the range of potential catch impacts:

- **Lower Bound** – In the lower bound scenario, the analysis assumes that vessels in Category A experience a five percent reduction in annual catch. The catch of vessels in Category B is assumed to be unaffected.

- **Upper Bound –** In the upper bound scenario, the analysis assumes that all vessels in Category A experience a 10 percent reduction in annual catch, while those in Category B experience a five percent reduction.

[5] Personal communication with Massachusetts DMF, November 7, 2012.

[6] Personal communication with Massachusetts DMF, November 7, 2012. DMF also noted that several ports on the Outer Cape have sandbars that can only be cleared when the tide is high. Fishermen access and haul their traps in a relatively narrow window of time each day. While trawl fishermen tend to haul more gear to make up for lower catch rates, this may not be an option for those whose ability to exit and return to port is limited by the tides.

The impact of a reduction in catch on a vessel's annual landings is calculated as follows:

Baseline Catch per Trap (pounds/trap) x *Traps Fished (traps/year)* x *Catch Reduction (%)*

Similarly, the reduction in annual landings is converted to a loss in annual revenue using the following equation:

Reduction in Catch (pounds/year) x *Ex-Vessel Price ($/pound)*

Exhibit 6-4 summarizes the source and value of key parameters applied in the analysis. For example, in Maine Lobster Management Zones A through G, the estimated annual catch per trap (33.5 pounds) is an average of two figures: (1) the annual catch per trap reported for the Gulf of Maine in the Atlantic States Marine Fisheries Commission's most recent Lobster Stock Assessment (2009); and (2) the average annual catch per trap reported by LMA 1 lobstermen in the GMRI survey (2006). At an ex-vessel price of $3.21 per pound – the average price reported for landings in Maine from 2009 through 2011 – this translates to annual revenues of $107.57 per trap. Thus, a five to ten percent reduction in catch implies a reduction in annual revenues of $5.38 to $10.76 per trap.

It is vital to note that the assumptions applied in estimating potential catch impacts are generalized, and the magnitude of such impacts is highly uncertain. A given vessel may experience catch changes greater or less than the impacts assumed in the analysis. These impacts may diminish over time, as fishermen adapt to new gear configurations and learn to fish longer trawls more efficiently. Nonetheless, it is important to recognize that changes in gear configurations could have an overall impact on catch rates. The analysis does so, applying a range of assumptions to illustrate the potential magnitude of this effect.

6.2.4 Other Potential Impacts Associated with Gear Configuration Requirements

The analysis does not attempt to quantify several other impacts potentially associated with changes in ALWTRP gear configuration requirements. These include:

- Costs associated with increased gear loss;
- The potential need for a larger crew to handle longer trawls;
- Vessel modification costs;
- Costs for various gear requirements proposed for trap fisheries in the southeast Atlantic;
- Savings that may result under Alternatives 3, 5, and 6 (Draft) as a result of exempting gear in New Hampshire state waters from existing gear modification requirements (e.g., the requirement to use sinking groundline); and
- Savings that may result under Alternative 6 (Preferred) as a result of establishing a quarter-mile buffer around select islands on the Maine coast; trawling requirements would not apply in these buffer areas.

Exhibit 6-4

PARAMETERS FOR ASSESSING LANDINGS REDUCTION AND ASSOCIATED REVENUE IMPACTS FOR VESSELS CONVERTING TO LONGER TRAWLS

Fishery	Waters	Annual Catch per Trap (pounds)	Basis for Catch per Trap Estimate	Ex-Vessel Price	Price Basis	Gross Revenue per Trap	5% Revenue Reduction per Trap	10% Revenue Reduction per Trap
Lobster	Maine State and Federal Waters (Zones A-G)	33.5	GMRI survey catch per trap for LMA 1; Lobster Stock Assessment (LSA) catch per trap for Gulf of Maine	$3.21	Average ME price, 2009 to 2011	$107.57	$5.38	$10.76
	New Hampshire State Waters	33.5	GMRI survey catch per trap for LMA 1; LSA catch per trap for Gulf of Maine	$4.16	Average NH price, 2009 to 2011	$139.30	$6.96	$13.93
	Massachusetts SRA 1	30.2	2011 Catch Report data	$3.93	Average MA price, 2009 to 2011	$118.56	$5.93	$11.86
	Massachusetts SRA 2	30.6	2011 Catch Report data	$3.93	Average MA price, 2009 to 2011	$120.23	$6.01	$12.02
	Massachusetts SRA 3	27.4	2011 Catch Report data	$3.93	Average MA price, 2009 to 2011	$107.71	$5.39	$10.77
	Massachusetts SRA 4	34.3	2011 Catch Report data	$3.93	Average MA price, 2009 to 2011	$134.94	$6.75	$13.49
	Massachusetts SRA 5	24.9	2011 Catch Report data	$3.93	Average MA price, 2009 to 2011	$97.76	$4.89	$9.78
	Massachusetts SRA 6	29.6	2011 Catch Report data	$3.93	Average MA price, 2009 to 2011	$116.18	$5.81	$11.62
	Massachusetts SRA 7	32.1	2011 Catch Report data	$3.93	Average MA price, 2009 to 2011	$126.18	$6.31	$12.62
	Massachusetts SRA 8	32.8	2011 Catch Report data	$3.93	Average MA price, 2009 to 2011	$128.90	$6.45	$12.89
	Massachusetts SRA 9	36.6	2011 Catch Report data	$3.93	Average MA price, 2009 to 2011	$143.82	$7.19	$14.38
	Massachusetts S. Cape (SRAs 10-13)	16.2	2011 Catch Report data; average for the 3 SRAs	$3.93	Average MA price, 2009 to 2011	$63.78	$3.19	$6.38
	Massachusetts SRA 14	21.7	2011 Catch Report data	$3.93	Average MA price, 2009 to 2011	$85.23	$4.26	$8.52
	Rhode Island State Waters	24.5	GMRI catch per trap for LMA 2; LSA catch per trap for Southern New England	$4.35	Average RI price, 2009 to 2011	$106.80	$5.34	$10.68
	LMA 1 Other	33.5	GMRI survey catch per trap for LMA 1; LSA catch per trap for Gulf of Maine	$3.32	Weighted average price for ME, NH, and MA, 2009 to 2011	$111.40	$5.57	$11.14

Exhibit 6-4

PARAMETERS FOR ASSESSING LANDINGS REDUCTION AND ASSOCIATED REVENUE IMPACTS FOR VESSELS CONVERTING TO LONGER TRAWLS

Fishery	Waters	Annual Catch per Trap (pounds)	Basis for Catch per Trap Estimate	Ex-Vessel Price	Price Basis	Gross Revenue per Trap	5% Revenue Reduction per Trap	10% Revenue Reduction per Trap
	LMA OC Other	59.3	Average of SRAs 9 and 18 based on DMF Catch Report data	$3.93	Average MA price, 2009 to 2011	$233.29	$11.66	$23.33
	LMA 2 Other	24.5	GMRI survey catch per trap for LMA 2; LSA catch per trap for Southern New England	$4.01	Weighted average price for MA and RI, 2009 to 2011	$98.43	$4.92	$9.84
	LMA 3	94.6	GMRI catch per trap for LMA 3; LSA catch per trap for Georges Bank	$3.36	Overall average price (all Atlantic states), 2009 to 2011	$317.90	$15.89	$31.79
OTP	Massachusetts SRA 10-13	326.4	Weighted mix of catch per trap for 3 MA species, using weights from VL Model	$3.19	Weighted mix of price for 3 MA species, using weights from VL Model	$1,113.36[1]	$55.67	$111.34
	Massachusetts SRA 14	106.9	Weighted mix of catch per trap for 3 MA species, using weights from VL Model	$3.19	Weighted mix of price per trap for 3 MA species, using weights from VL Model	$340.23[1]	$17.01	$34.02
	RI State Waters	121	Average catch per trap for scup in MA Catch Report data	$0.66	Average RI price, 2009 to 2011	$79.86	$3.99	$7.99
	All Other Northeast OTP	N.A.	N.A.	N.A.	N.A.	N.A.	$9,955[2]	$19,910[2]

Notes:

1. Figure represents the weighted average of gross revenue per trap for each of three MA species (conch, scup, and black sea bass).
2. For OTP vessels outside of MA and RI state waters, the analysis incorporates a revenue reduction that is five or ten percent of average annual gross revenue for OTP vessels (approximately $199,100), as reported in NMFS' 2011 Dealer database.

The analysis addresses these impacts qualitatively, either because data to develop reasonable estimates are lacking or because available information suggests the impacts will be relatively small. The subsections below address each of these costs in greater detail.

6.2.4.1 Gear Loss Costs

Some gear configuration requirements affecting fixed-gear fisheries have the potential to affect rates of gear loss. Substantial changes in equipment losses can have important cost implications, and should therefore be examined carefully.

The impact of minimum trawl length requirements on gear loss in trap/pot fisheries is difficult to predict with confidence. The uncertainty is largely attributable to the array of underlying factors responsible for gear loss. On the one hand, longer trawls may increase the likelihood that groundline will foul on bottom structure, increasing the potential for line to part while hauling traps. Longer trawls may also increase the potential for gear conflicts, particularly situations in which one fisherman's gear is laid across another's. In these cases, one party may inadvertently sever another's lines, making it impossible to retrieve all or some of the gear. A longer trawl also increases the consequences of such incidents; i.e., the more gear on a single trawl, the more gear is lost when that trawl is rendered irretrievable.

In other ways, trawling requirements may reduce the potential for gear loss. The fundamental objective of longer trawls is to limit the number of vertical lines in the water column and reduce encounters with large whales; such encounters are one possible source of gear loss. Likewise, a decrease in the number of vertical lines may reduce the frequency with which gear is entangled in ship propellers or certain types of fishing gear. Furthermore, in areas where trawling requirements necessitate addition of a second endline (e.g., for a vessel going from triples to ten-trap trawls), the second endline may make it easier to locate and retrieve gear when one endline is lost. Longer trawls are also heavier and may be less likely to be swept away during extreme storm or tidal events.

Available data assessing how trawling requirements could affect gear loss are inconclusive. The Maine DMR trawling project (discussed above) asked participants to record whether they lost gear while hauling. An analysis of the raw data provided by DMR shows that of the roughly 3,100 sets of gear, 28 were lost. Of the lost sets, all but six were trawls of three traps or longer. While this outcome suggests a potential increase in gear loss when trawls are required, nine of the lost sets were seven- and 10-trap trawls fished with a single endline (an intentional feature of the project design). This gear configuration is unlikely in normal practice and would not be required by any of the alternatives that NMFS is considering. Furthermore, the participants fished the trawls on an experimental basis; for example, they may have intentionally placed some trawls on bottom structure unsuited to the experimental configuration. Overall, the sample of gear loss incidents in the project is too small to draw reliable conclusions about how trawling influences gear loss.

In 2010 and 2011, the Massachusetts DMF completed a comprehensive study of gear loss and "ghost" fishing (i.e., impacts from lost or derelict gear). Roughly 520 Massachusetts lobstermen responded to the survey (about 59 percent of all the lobstermen permitted in the Commonwealth); the responses were distributed across LMAs 1, 2, 3, and the Outer Cape in approximate proportion to lobstering activity. Respondents characterized the extent of their gear

loss in different seasons and discussed the perceived causes of gear loss. Exhibit 6-5 summarizes key information gathered in the survey. The findings demonstrate that gear loss is common and represents a significant cost for many lobstermen.

Exhibit 6-5

SUMMARY OF FINDINGS FROM MASSACHUSETTS DMF GEAR LOSS AND GHOST GEAR SURVEY

LMA	Average Number of Traps Lost per Vessel	Primary Causes of Gear Loss	Average Value of Gear Lost per Vessel
1	10 to 23	Storm events and vessel traffic	$640 to $1,570
Outer Cape	14 to 34	Storm events and vessel traffic	$1,410 to $2,950
2	8 to 21	Vessel traffic and bottom hang ups	$570 to $1,500
3	19 to 46	Gear conflicts, line wear, storm events	$3,860 to $7,140
Source: Massachusetts DMF, 2011			

The survey also included questions about typical gear configurations, allowing DMF to examine how gear loss varies with trawl length. Exhibit 6-6 summarizes the findings. The minimum gear loss rates reported for each configuration show slightly higher losses associated with singles. The maximum rates more strongly suggest that gear loss is greater when fishing singles and doubles than when trawls of three or more traps are used. Overall, these data indicate that rather than exacerbating gear loss, trawling requirements may reduce the amount of gear lost and thereby yield an economic benefit to affected fishermen.

Exhibit 6-6

INFLUENCE OF CONFIGURATION ON GEAR LOSS: MASSACHUSETTS DMF GEAR LOSS AND GHOST GEAR SURVEY

Configuration	Trap Loss Rate	
	Minimum	Maximum
Singles	2.7%	21.4%
Doubles	1.6%	19.3%
Trawls (three or more traps)	2.1%	8.7%
Source: Massachusetts DMF, 2011		

Overall, the effect of trawling on gear loss is unclear. While data from the Maine trawling project suggest some potential for increased gear loss during fishermen's transition to trawls, the more extensive data from the Massachusetts ghost gear survey suggest that trawls are less subject to gear loss in steady-state conditions. Gear loss is likely a function of numerous variables that extend well beyond the trawl configuration, including bottom structure, shipping traffic, gear density, gear conflicts, tides, currents, and weather events. The net effect of trawling in the context of all these variables is difficult to characterize or quantify. Hence, the cost estimates discussed in this chapter do not explicitly incorporate the impact of gear loss changes.

6.2.4.2 Addition of Crew

Fishermen operating alone could potentially have difficulty handling the longer trawls required under some of the regulatory alternatives. The physical demands of hauling trawls may be challenging for fishermen who haul by hand rather than with a mechanized hauler. Even with

a hauler, older fishermen may find it difficult to manage longer trawls. Addition of a sternman or other crew is one possible response for affected vessels. However, fishing alone is relatively uncommon on most vessels in ALWTRP-regulated waters. In addition, the cost of adding crew is prohibitive for most vessel operators. The subsections below present data suggesting that the addition of crew is unlikely as a response to the trawling requirements.

Crew on Affected Vessels

Numerous lobstermen and OTP fishermen choose to fish alone, primarily for economic reasons. To the extent that the desired quantity of gear can be hauled safely and efficiently without a sternman, vessel operators are likely to avoid the cost of additional crew (see below). The GMRI socioeconomic survey (2006) asked respondents (lobstermen landing more than 1,000 pounds) about their typical crew size (including the captain). A significant share of lobstermen fish alone, ranging from 19 percent in Maine Zone C to 66 percent in the LMA 2 portion of Massachusetts waters. It is important to note, however, that the GMRI data do not distinguish between inshore vessels and vessels fishing further offshore, an important predictor of crew size. In particular, it is important to consider crew size in exempt versus non-exempt waters.

In Maine, where many affected vessels operate, data suggest that a large share of lobstermen fishing alone operate in waters that would be exempt from the trawling requirements. While comprehensive data on crew size are not available, Maine DMR data on lobster licenses indicate the maximum crew per vessel. Permits coded LCO (for operators over 70 years of age) or LC 1 allow only the operator to fish; LC 2 and LC 3 permits allow for one and two sternmen, respectively.[7] A variety of other licenses are issued to students, minors, and other groups.

The permit classification data were linked to data from DMR's Annual Logs Survey, a 2010 survey of Maine lobstermen.[8] The supplemented data allow a more detailed analysis of the geographic area fished by vessels with only the captain on board. Exhibit 6-7 demonstrates that while about 16 percent of vessels in exempt waters hold permits restricting crew to the vessel operator, only about seven percent of vessels in non-exempt state waters are similarly restricted. Likewise, the vast majority of vessels fishing in Federal waters hold licenses that allow for one or more sternmen. Overall, these data suggest that a small percentage of Maine vessels in ALWTRP-regulated waters fish without a sternman. Furthermore, the data indicate that a very small percentage of these vessels are operated by older captains who might have particular difficulty managing trawls.

[7] Note that the permit types designate the maximum crew allowed, not actual crew; e.g., an operator with an LC 2 license could fish without a sternman. Therefore, the analysis may understate the actual number of vessels with no crew.

[8] The Vertical Line Model bases its characterization of gear use by Maine lobster vessels in large part on information obtained from the Annual Logs Survey. Issued in 2010 to all Maine lobstermen, the survey requested information on gear configurations and the location of fishing effort, specifying one or more of 21 areas. Approximately 2,100 lobstermen responded to the survey.

Exhibit 6-7

MAINE LOBSTER LICENSES AS AN INDICATOR OF CREW SIZE

Waters	Licensed for Vessel Operator Only (No Crew)		All Other Licenses
	Operator-Only (LC 1)	Over-70 Operator (LCO)	
Exempt (State) Waters	13.3%	2.7%	84.1%
Non-Exempt State Waters	6.2%	0.7%	93.1%
Federal Waters	3.4%	0.4%	96.2%
Source: Analysis of Maine Annual Logs Survey data and permit data (2010).			

Massachusetts DMF also provided data allowing an assessment of crew size. As part of supplemental reporting for permit renewal, DMF asks vessel operators to report the size crew the vessel typically carries. Linking these data to 2009 Catch Report data enables a comprehensive analysis of crew size. Exhibit 6-8 summarizes the distribution of crew size for all lobster and other trap/pot vessels in all months and waters. As shown, about 30 percent of all vessel operators report that they fish alone. This practice is especially predominant in inshore areas. Unlike Maine, however, most of these inshore areas are subject to ALWTRP requirements (i.e., the geographic extent of exempt waters is extremely limited). Nonetheless, the majority of potentially affected vessels already fish with a crew.

Exhibit 6-8

DISTRIBUTION OF VESSELS BY CREW SIZE:
ACTIVE LOBSTER AND OTP VESSELS IN MASSACHUSETTS

Operator Only	One Crew Member	Two or More Crew Members	Not Reporting
30.3%	44.7%	13.5%	11.4%
Source: Analysis of Massachusetts DMF Permit and Catch Report data (2009).			

Sternman Costs

Vessel operators choose to work with crew primarily for economic reasons. For instance, a sternman may be cost-effective when lobster abundance is high, harvests are large, and fishing effort is high. Sternmen may also be hired for non-economic reasons, such as safety in offshore waters and for apprenticing purposes.

Sternmen are typically paid a percentage of the vessel's gross (or sometimes net) revenue. Exhibit 6-9 summarizes data from GMRI's 2005 survey of lobstermen in the Gulf of Maine.[9] As the exhibit indicates, payments to sternmen represent a substantial operating cost. A single sternman may be paid roughly 20 percent of gross revenue. On offshore vessels that typically operate with multiple crew members, sternmen may be paid a third of gross revenues.

[9] Figures are adjusted to 2011 dollars using the Gross Domestic Product Implicit Price Deflator index provided in the Economic Report of the President, 2012.

Exhibit 6-9 TYPICAL STERNMAN COSTS		
Area	**Average Payments to Sternmen ($2011)**	**Payment as a Percent of Gross Revenue**
LMA 1	$25,188	21%
LMA 2	$21,269	17%
LMA 3 (Offshore)	$155,568	32%
Source: GMRI (2006) as summarized in Thunberg (2007).		

Conclusions

The information presented above demonstrates that the addition of a sternman is a major economic decision for a vessel operator, and is dependent upon many factors. If an operator fishes alone, trawling requirements are not likely to alter that preference. Moreover, the available data suggest that vessel operators who work without a sternman are not necessarily limited to fishing singles. For example, of the Massachusetts lobster and OTP vessel operators who work alone, over two-thirds already fish trawls of three or more traps.[10] Anecdotal discussions with fisheries managers also indicate that trawls are routinely fished by vessel operators working alone.[11]

Nonetheless, the physical demands of hauling trawls may prove to be a challenge to some lone operators. In Maine, these vessels may have the option of relocating to exempt waters. Beyond this option, it is possible that the trawling requirements may force some fishermen to fundamentally reconsider their operations, including crew choices. For instance, an operator fishing alone may choose to hire a sternman, fish more traps, and possibly move to a new location. NMFS does not believe such changes will be widespread, and the analysis does not reflect the cost of such major operational shifts.

6.2.4.3 Vessel Modification

For a variety of reasons, operators of smaller vessels may find it difficult to fish trawls. Some small vessels, for example, may lack the deck space to accommodate trawls. Experts with Maine DMR, however, note that in some cases, operators of smaller vessels have made it feasible to use trawls by affixing plywood sheeting to the stern or the rail of their vessels, thus extending the available deck space.[12] The operators of small vessels affected by the proposed trawling requirements may choose to make similar modifications.

Estimating the number of vessels that would need this type of modification would require data on vessel size and other features that are not readily available; thus, the estimate of

[10] Based on analysis of MA DMF permit and 2009 Catch Report data.

[11] Personal communications with Maine DMR (August 30, 2012) and Massachusetts DMF (November 7, 2012).

[12] Personal communication with Maine DMR, August 30, 2012.

compliance costs does not specifically incorporate vessel modification costs. All else equal, the exclusion of these costs biases the estimate downward. In aggregate, however, these costs are likely to be relatively low; thus, the magnitude of any bias is likely to be minor.

6.2.4.4 Requirements for Southeast Trap/Pot Fisheries

As described in Chapter 3, Alternatives 2 through 6 (Preferred) include a set of special requirements for trap/pot gear in the Southeast region, which would affect the blue crab and OTP fisheries operating in ALWTRP-regulated waters off the coasts of South Carolina, Georgia, and Florida. In waters off South Carolina and Georgia, the alternatives would require affected vessels to fish singles; use weak links with a breaking strength no greater than 600 pounds; use vertical line with a breaking strength no greater than 2,200 pounds; and use vertical line that is free of weights and knots. The requirements for waters off Florida are similar, but specify 200-pound weak links and the use of sink rope with a breaking strength no greater than 1,500-pounds over the entire length of each vertical line. In addition, the alternatives would require trap/pot gear set in Federal waters in the Southeast to be returned to shore at the conclusion of each trip, effectively prohibiting overnight sets of this gear. All vessels operating in regulated waters would also be required to adhere to ALWTRP gear-marking conventions.

Research suggests that current practices are largely consistent with the gear configuration requirements outlined above; therefore, the cost of complying with them is unlikely to be significant.[13] NMFS' Southeast Regional Office (SERO) has verified that most affected vessels currently use singles; this observation is consistent with research performed in developing the Vertical Line Model. In addition, SERO inspections suggest that fishermen are already using weak links of the recommended breaking strength. The consistency of current practices with the remaining gear configuration requirements is slightly less certain, but for the reasons noted below, significant compliance costs are unlikely:

- SERO indicates that most fishermen already use rope with the proposed breaking strength.

- In addition, SERO indicates that the use of sinking material across the entire length of each vertical line is already required for traps/pots set in South Carolina state waters and is standard practice off the coast of Georgia. SERO is less certain whether the use of sinking material across the entire length of vertical line is standard practice in the waters off Florida.

- The requirement for vertical line to be free of knots, weights, and splices raises greater uncertainty, but the available data suggest that current practice is largely consistent with this requirement. NOAA Enforcement inspections in Florida found a small number of crabbers (two or three) with non-continuous line. In addition to finding limited use of non-

[13] Personal communication with Jessica Powell of NMFS/Southeast Regional Office and Richard Chesler of NOAA Enforcement, September 17, 2012.

continuous line, NOAA Enforcement notes that Florida crabbers fish in shallow water (30 to 40 feet), so the need for splicing is fairly minimal.

A simple worst-case illustration suggests that complying with the requirement to use continuous sinking line of the proper breaking strength would impose relatively modest costs on vessels in the southeast blue crab and OTP fisheries, even if these requirements necessitated replacement of all of a vessel's vertical line. If a vessel fishes 200 traps in 40 feet of water, it would require approximately 8,000 feet of vertical line. At a price of approximately $0.053 per foot, this quantity of line would cost approximately $424.[14] Amortized over the useful life of the line, these costs would have little influence on the profit of any single vessel. Moreover, operators of these vessels could choose to avoid the cost by relocating their effort to exempt waters.

The prohibition on overnight sets in the Southeast region's Federal waters would likely affect a subset of vessels in the blue crab fishery, but the data available on activity in these waters suggest that the impact would be limited. The majority of blue crab effort in the Southeast occurs in exempt waters landward of the COLREGS line; therefore, the number of vessels that would be affected by a change in requirements for Federal waters would be small. Southeast Logbook data show no crabbing activity in Federal waters; however, a number of Georgia and South Carolina fishermen who commented on the DEIS at public hearings indicated that they occasionally set gear in Federal waters.[15] State fisheries experts confirm this, noting that this activity tends to peak from December through March, when blue crabs typically migrate to deeper water in search of more desirable salinity and temperature conditions.[16] A one-time survey performed by the Georgia Department of Natural Resources (DNR) indicates that approximately 25 fishermen harvested blue crab in ocean waters in the winter months of 2009 (George, 2010). These fishermen collectively placed about 400 to 500 traps in Federal waters; the same fishermen fished roughly three times as many pots in state waters. Based on this survey, DNR estimates that roughly 12 to 25 fishermen might fish a portion of their traps in Federal waters at some point during the year. South Carolina data show even fewer vessels operating in Federal waters; in 2010, only one vessel fished in South Carolina's ocean waters, suggesting that activity in Federal waters was negligible that year.

The prohibition on overnight sets would likely eliminate fishing for blue crab in Federal waters, since returning gear to port each night is impractical. In years when the crabs' migration falls short of Federal waters, this would have little or no impact on landings. In others, however, the prohibition on overnight sets in Federal waters would force fishermen to restrict their effort to state waters, and would likely lead to a reduction in landings. Characterizing the landings loss is difficult given the lack of location-specific data and the annual variation in fishing conditions. A rough, upper-bound estimate for the Georgia fishery is possible using the limited data

[14] This figure is based on the list price for a 1,000-foot spool of Osprey #8 sinking crab pot rope, as specified by a supplier in North Carolina (mikekellerltd.com).

[15] State fisheries experts indicate that blue crab fishermen typically report the estuary in which they set most of their gear as the location of their activity. This may explain the absence of Logbook data on crabbing activity in Federal waters.

[16] Personal communication with Clay George and Doug Haymans, Georgia Department of Natural Resources, December 19, 2013.

available. In 2009 (the year of the DNR survey), about 65 crabbers fished during the winter months (December through March). The DNR survey estimates that a maximum of 25 of these fishermen (38 percent) fished in Federal waters. The survey also suggests that these fishermen fished about one-quarter of their traps in Federal waters; this is equivalent to approximately 9.5 percent of all gear fished during the winter period. NMFS dealer data indicate that Georgia crabbers landed about $896,000 in blue crab during the winter of 2009. Pro-rating this figure suggests that gear set in Federal waters accounted for approximately $85,000 in gross revenue during 2009. It is unlikely, however, that all of this revenue would be lost. Some might be recovered by relocating gear to state waters during the winter months, and some might be recovered at other times of the year, as the crabs return inshore. Overall, the prohibition on overnight sets could prevent a small subset of crabbers from maximizing their harvests in certain years, but it is unlikely to create substantial economic losses in the fishery.

Given these considerations, the quantitative economic impact estimates presented in this chapter do not include gear conversion or other costs related to potential new requirements in the Southeast. The only costs for Southeast blue crab and OTP vessels that are incorporated into these estimates are those associated with new gear marking provisions, which under Alternatives 2 through 6 (Preferred) would apply to all fisheries that are subject to ALWTRP requirements (see discussion below).

6.2.4.5 Exemption for New Hampshire State Waters

As previously noted, Alternatives 3, 5, 6 (Draft), and 6 (Preferred) would exempt trap/pot gear in New Hampshire state waters from minimum trawl length requirements. Alternatives 3, 5, and 6 (Draft) also would exempt gear in these waters from all other provisions of the ALWTRP except for gear marking requirements. While the economic analysis takes the exemption from minimum trawl length requirements into account in estimating the costs of complying with Alternatives 3, 5, 6 (Draft), and 6 (Preferred), it does not attempt to estimate potential cost savings associated with exempting gear in New Hampshire waters from the ALWTRP's existing gear requirements (e.g., the requirement to use sinking groundline). It is likely that an exemption from these requirements would reduce operating costs for vessels fishing in New Hampshire waters. To the extent that this is the case, the analysis of gear conversion costs will overstate the costs of complying with Alternatives 3, 5, and 6 (Draft).

6.2.4.6 Buffer Areas for Maine Islands

Alternative 6 (Preferred) would establish quarter-mile buffer areas around three Maine islands: Matinicus Island, Ragged Island (located adjacent to Matinicus), and Monhegan Island. Vessels fishing in these areas would not be subject to minimum trawl length requirements. The rationale for the buffers, described further in Chapter 3, focuses on the likely absence of whales in close proximity to these islands and bottom conditions that favor the use of single traps.

Relative to the other action alternatives, the designation of a quarter-mile buffer zone around Matinicus, Ragged, and Monhegan Islands would reduce compliance costs for vessels fishing singles in these waters. The effect is difficult to quantify, since the available data on the location of trap/pot activity is insufficiently precise to characterize the concentration of gear within these areas. Those familiar with the islands, however, note that the quantity of gear likely

to be set within the buffer areas is small. Experts at the Island Institute, a non-profit organization devoted to protecting Maine's remote island and coastal communities, indicate that only five to 10 lobstermen work the waters around Monhegan.[17] Likewise, only about 10 to 15 lobstermen fish the waters surrounding Matinicus and Ragged Islands. Those fishing closest to the islands (many of whom are nearing retirement or are young entrants learning the trade) tend to use smaller vessels and fewer traps, further limiting the quantity of gear affected.[18] Thus, while the establishment of buffer areas would likely reduce compliance costs for a small number of vessels, this measure is unlikely to have a substantial impact on compliance costs for the lobster fishery as a whole and is not taken into account in estimating the cost of complying with Alternative 6 (Preferred).

6.3 ANALYTIC APPROACH: SEASONAL CLOSURES

As described in detail in Chapter 3, Alternatives 3 through 6 (Preferred) include provisions that would close certain areas to trap/pot gear during specified periods. Analysis of available data on vessel activity indicates that the practical impact of these provisions would be limited to the lobster fishery, since vessels in other trap/pot fisheries do not appear to be active in the areas of interest when a closure would be in effect. How a lobster vessel is likely to respond to a given closure depends on the features of the closure as well as the unique economic incentives facing the vessel operator. In general, vessel operators will likely choose one of two responses:

- **Relocate –** It may be possible for vessel operators to fish for lobster in other areas during the closure period. The potential for relocation depends on many factors, including regulatory restrictions on access to alternative areas, the distance to those grounds, the productivity of the grounds, and the potential for competition with others to limit access to a new area.

- **Suspend Fishing –** If alternative fishing grounds are not readily available, vessel operators may suspend fishing while their regular grounds are closed and resume fishing in the area when the closure ends.

These responses have different implications for economic welfare, and affected fishermen may respond differently, depending upon individual circumstances. The discussion that follows examines this issue, beginning with a brief review of the literature on the effect of area closures on commercial fisheries. It then describes the general approach the analysis employs to analyze the costs associated with closures. Finally, it examines each of the proposed closures individually, describing how affected vessels are likely to respond.

[17] Personal communication with Nick Battista, Marine Programs Director, Island Institute, November 25, 2013.

[18] The waters around Monhegan Island are governed by a conservation agreement established by the Maine Department of Marine Resources and the Maine Legislature. The agreement limits fishing to 250 days from October to June and allows a maximum of 400 traps per vessel. Personal communication with Erin Summers, Maine Department of Marine Resources, January 13, 2014.

6.3.1 Review of the Literature on Closure Impacts

To inform the analysis of closure impacts, NMFS conducted a brief review of methods that other studies have employed to evaluate similar actions. Exhibit 6-10 summarizes the results of this review. The research identified no studies that employed methods directly applicable to analysis of the closures under consideration. In particular, none of the recent studies address the fisheries and areas that would be subject to seasonal closures under Alternatives 3 through 6 (Preferred). In addition, several of the studies apply quantitative methodologies requiring detailed, vessel-specific information on fishing location, landings, and other parameters. This type of information is not available for the vast majority of vessels that the closures under consideration would affect.

Despite these limitations, the literature identifies several concepts that help inform analysis of the economic impacts of a closure:

- First, most of the studies focus on two fundamental responses to closures: suspending fishing or relocating fishing effort. The analysis presented here examines both potential responses.

- Second, the studies emphasize the high degree of uncertainty regarding the potential impact of a closure. To reflect this uncertainty, the analysis applies methods that yield a range of estimated economic impacts.

- Finally, at least one study found a tendency for affected vessels to relocate to the perimeter of the closed area. As discussed below, we apply a similar assumption as a default when available data do not allow a more detailed analysis of relocation options.

Exhibit 6-10

LITERATURE ON FISHERY CLOSURE IMPACTS

Author	Year	Fishery	Approaches and/or Major Findings
NMFS	2006	Sea Scallop Dredge Fishery (Mid-Atlantic)	Study assumed that 100 percent of affected vessels would cease fishing during the May through November scallop closure in the Mid-Atlantic.
Power and Abeare	2009	Various	Study applied an Ideal Free Distribution model to assess closure effects. This technique uses optimization methods to predict where vessels will relocate. The approach assumes that vessels will move to locations that offer the greatest catch or profitability.
Murawski, et al.	2008	Groundfish (New England)	Study examined redistribution of effort in response to 1994 groundfish closure in New England. It found evidence of effort intensification within five kilometers of the closed area.
Goni, et al.	2006	Spiny Lobster (Mediterranean)	Study found that vessels initially congregated around the closed area but later relocated to avoid traffic and congestion.
Rijnsdorp, et al.	2001	Dutch Beam Trawl	Study demonstrates the potential for temporal shifts in effort following a closure. Dutch trawlers quickly returned to a cod fishing area after a seasonal closure and fished the area intensively for approximately two weeks thereafter.

6.3.2 Costs of Suspending Fishing

Fishermen may respond to closures by suspending fishing during the closure period. The forgone revenue associated with inactivity would be the primary cost for fishermen who choose to sit out closures. The sections below describe the general methodological approach used to estimate costs for trap/pot vessels that suspend fishing activity.

6.3.2.1 Catch per Trap

The analysis of the cost of suspending fishing is based on estimates of revenue per trap, which are then used to estimate forgone revenue based on the number of traps fished on affected vessels. The estimates of revenue impacts are tailored to the area and season each closure would affect. In each case, the analysis incorporates catch-per-trap estimates based on the best available data. For the Jeffreys Ledge (Alternative 4 & 5) and Jordan Basin (Alternative 4 & 5) closures, the analysis relies upon data from GMRI's 2005 survey of lobster fishermen. Respondents fishing in LMAs 1, 2, and 3 reported their average landings and traps fished during each quarter of the year; Exhibit 6-11 summarizes the survey findings and the resulting estimates of catch per trap. To estimate catch per trap during the closure period, the analysis weights the relevant quarterly catch-per-trap figures to conform to the period of each closure and the relevant LMA. For example, the analysis of the Jeffreys Ledge closure is based on the catch-per-trap data for LMA 1, applying weights of 1.0 to the fourth quarter catch-per-trap figure (October through December) and 0.33 to the first quarter figure (January).

Exhibit 6-11

CATCH PER TRAP ESTIMATES BASED ON GMRI SURVEY

LMA	Number of Survey Respondents	Quarter	Traps per Vessel	Pounds Landed	Catch per Trap (Pounds)
1	N=918	1	443	859	1.9
		2	481	2,909	6.0
		3	557	11,071	19.9
		4	550	10,678	19.4
		Annual	557	25,517	45.8
2	N=205	1	367	784	2.1
		2	394	1,937	4.9
		3	450	4,846	10.8
		4	448	2,539	5.7
		Annual	450	10,106	22.5
3	N=33	1	1,041	5,618	5.4
		2	1,030	12,066	11.7
		3	1,055	25,970	24.6
		4	1,035	29,497	28.5
		Annual	1,055	73,151	69.3

For the closure of the Cape Cod Bay Restricted Area (Alternative 3), Massachusetts Restricted Area #1 (Alternatives 4 & 5), and Massachusetts Restricted Area #2 (Alternative 6 Draft and 6 Preferred), the analysis incorporates catch per trap estimates based on Massachusetts DMF's Catch Report data. Using 2011 data, DMF compiled information for each statistical reporting area (SRA) on landings and traps fished in each month. These data enable estimation of catch per trap figures that are tailored to the specific geographic areas and months affected by each closure. Specifically, the catch-per-trap estimate for each closure is a weighted average of the seasonal catch per trap in the affected SRAs. The weights represent the percent of all the gear affected by the closure that is associated with the given SRA. For instance, if gear from SRA 6 represents 10 percent of all the gear displaced by the closure in February, a weight of 0.1 is applied to the February SRA 6 catch per trap figure. The weights are developed using NMFS' Vertical Line Model. Exhibit 6-12 presents the final catch per trap figures estimated for each of the Cape Cod closures.

Exhibit 6-12

CATCH PER TRAP ESTIMATES FOR CAPE COD CLOSURES

Area	Months	Regulatory Alternatives	Affected SRAs	Catch per Trap During Closure Period (Pounds)
CCB Restricted Area	Feb - Apr	3	6, 7, 8, 19	2.77
Massachusetts Restricted Area #1	Jan - Apr	4 & 5	5, 6, 7, 8, 9, 10, 18, 19	6.08
Massachusetts Restricted Area #2	Jan - Apr	6 Draft and 6 Preferred	5, 6, 7, 8, 9, 18, 19	6.08

Source: Analysis of Massachusetts DMF Catch Report data (2011).

6.3.2.2 Revenue per Trap

Catch per trap is combined with ex-vessel price data to estimate gross revenue per trap. At the time this analysis was developed, the NMFS Dealer data provided ex-vessel prices through 2011. To characterize typical market conditions, the analysis incorporates price data for the three most recent years available (2009 to 2011).[19] To align prices with the area-and season-specific catch-per-trap data, the analysis uses ex-vessel price data from the states and months relevant to each closure.

Gross revenue per trap is the product of the catch per trap and the applicable ex-vessel price for each closure. A final adjustment is needed to convert gross revenue per trap to net revenue per trap. Fishermen who suspend fishing during closures will forgo revenue but will save the operating costs associated with the effort (while continuing to pay fixed costs such as boat payments). Operating costs are the costs that vary with fishing effort, and primarily include bait, fuel, and payments to sternmen (when relevant). The GMRI survey (as summarized in Thunberg, 2007) characterized operating costs as a percent of gross revenue for each of the three major LMAs, as shown in Exhibit 6-13. Operating costs as a percent of gross revenue range

[19] All price information is adjusted to 2011 dollars using the Gross Domestic Product Implicit Price Deflator index provided in the Economic Report of the President, 2012.

from a total of 23 percent (LMA 2, no sternman aboard) to a high of 56 percent (LMA 3, sternmen aboard).[20]

Exhibit 6-13

OPERATING COSTS AS A PERCENT OF GROSS REVENUE

	LMA 1		LMA 2		LMA 3
Cost Element	**No Sternman**	**Sternman**	**No Sternman**	**Sternman**	**Sternman**
Sternman Pay	N.A.	21%	N.A.	17%	32%
Fuel and Bait	26%	23%	23%	21%	24%
Total	26%	44%	23%	38%	56%

Source: Thunberg, 2007

The analysis applies these figures to the estimates of gross revenue per trap to calculate revenue per trap net of operating cost savings. Lacking definitive data on crew size, the analysis applies the mid-point of the "with sternman" and "without sternman" figures to estimate revenue per trap net of operating cost savings.[21]

Exhibit 6-14 summarizes the parameters used to estimate lost revenue per trap for each closure. As discussed further below, the analysis includes a closure-specific estimate of the number of traps fished per vessel. Thus, the impact of the closure on the net revenue of each affected vessel is the product of the number of traps the vessel would ordinarily fish in the closed area and the estimate of forgone revenue per trap, net of operating cost savings.

6.3.2.3 Transition Costs

In addition to costs incurred within the closure period, vessels suspending fishing will likely incur transition costs preceding and following the closure. Specifically, vessels will need to remove gear from the closed area in advance of the closure start date in order to ensure that no gear remains in the restricted area when the closure begins. Likewise, at the end of the closure period, vessels returning gear to the restricted area will reset it incrementally until all traps are in place.

Based on discussion with NMFS gear experts, the analysis assumes that most lobster vessels can haul/remove 60 traps per trip and set 80 traps per trip.[22] For instance, if a vessel

[20] Note that these figures are consistent with those reported in earlier studies. In 1995, a University of Rhode Island study estimated operating costs of 34 percent, 32 percent, and 71 percent, respectively, for the northern inshore, southern inshore, and offshore segments of the lobster fishery. In 1989, Liebzeit and Allen found percentages ranging from 30 to 56 percent, depending upon the state (Massachusetts and Rhode Island) and vessel size.

[21] Most vessels in regulated waters fish with a sternman aboard; therefore, the estimates of lost revenue per trap may slightly overstate the loss most vessels would incur.

[22] The analysis assumes that any large offshore vessels affected by a closure would be capable of pulling or resetting 120 traps per trip.

fishes 300 traps, it can remove these traps over the course of five days. As more traps are removed, the loss in net revenues increases. Similarly, net revenue losses diminish as traps are reset. The magnitude of transition costs for each particular closure is a function of the total number of traps that affected vessels fish, as well as the unique net revenue per trap figures that apply to the closure.

6.3.2.4 Caveats

Ex-vessel prices for lobster are a key factor in estimating the losses associated with suspending fishing. The estimates of net revenue per trap employed in this analysis are based on 2009 to 2011 price data, the most recent data available at the time the analysis was developed. Prices during 2012 trended lower; ex-vessel prices during the summer of 2012 were reported in some areas of Maine to have gone as low as $1.50 per pound. Most observers consider this decline to have been anomalous, partly the product of the early arrival of shedder (soft-shell) lobsters ahead of tourist season (Associated Press, 2012). Nonetheless, a downward trend in prices is possible. All else equal, continuation of that trend would lead the analysis to overstate future losses in net revenue.

It is also important to note that the analysis of the revenue losses associated with suspending fishing assumes that fishermen lose all the catch they would ordinarily harvest during the closure period. The loss in landings may actually be less, depending on lobster movements and behavior. Specifically, some of the lobsters not caught during the closure may simply be harvested once the closed area is reopened (i.e., catch rates may be higher than normal following the closure). To the extent that this occurs, the analysis may overstate the economic losses associated with suspending fishing.

Exhibit 6-14

DERIVATION OF LOST REVENUE PER TRAP FOR THE ASSESSMENT OF CLOSURE-RELATED ECONOMIC LOSSES

Area	Closure Period	Catch Per Trap During Closure (Pounds)	Basis For Catch Per Trap	Ex-Vessel Price	Basis For Ex-Vessel Price	Gross Revenue Per Trap During Closure	Operating Cost as a % of Gross Revenue	Basis for Operating Cost	Lost Revenue per Trap (Gross Net of Operating Cost)
CCB Restricted Area (Alternative 3)	Feb 1 – Apr 30	2.77	Weighted average of SRAs 6, 7, 8 and 19 using DMF Catch Report data	$4.85	Average MA ex-vessel price, Feb through Apr (2009 to 2011)	$13.44	35.0%	Midpoint (with and without sternman) of LMA 1 vessels as estimated in Thunberg (2007)	$8.74
Jeffreys Ledge (Alternatives 4 & 5)	Oct 1 – Jan 31	20.1	Weighted average of GMRI quarters 4 and 1 for LMA 1	$3.33	Average ME, NH, and MA ex-vessel price, Oct through Jan (2009 to 2011)	$66.71	35.0%	Midpoint (with and without sternman) of LMA 1 vessels as estimated in Thunberg (2007)	$43.36
Jordan Basin - LMA 3 waters (Alternatives 4 & 5)	Nov 1 – Jan 31	20.8	Weighted average of GMRI quarters 4 and 1 for LMA 3	$3.37	Average ME ex-vessel price, Nov through Jan (2009 to 2011)	$70.02	56.0%	LMA 3 vessels as estimated in Thunberg (2007)	$30.81
Jordan Basin - LMA 1 waters (Alternatives 4 & 5)	Nov 1 – Jan 31	13.6	Weighted average of GMRI quarters 4 and 1 for LMA 1	$3.37	Average ME ex-vessel price, Nov through Jan (2009 to 2011)	$45.75	35.0%	Midpoint (with and without sternman) of LMA 1 vessels as estimated in Thunberg (2007)	$29.74
Massachusetts Restricted Area #1 (Alternatives 4 & 5)	Jan 1 – Apr 30	6.08	Weighted average of SRAs 5, 6, 7, 8, 9, 10, 18 and 19 using DMF Catch Report data	$4.72	Average MA ex-vessel price, Jan through Apr (2009 to 2011)	$28.72	32.8%	Midpoint (with and without sternman) of LMA 1 and 2 vessels as estimated in Thunberg (2007)	$19.31
Massachusetts Restricted Area #2 (Alternative 6 Draft & 6 Preferred)	Jan 1 – Apr 30	6.08	Weighted average of SRAs 5, 6, 7, 8, 9, 18 and 19 using DMF Catch Report data	$4.72	Average MA ex-vessel price, Jan through Apr (2009 to 2011)	$28.72	32.8%	Midpoint (with and without sternman) of LMA 1 and 2 vessels as estimated in Thunberg (2007)	$19.31

6.3.3 Relocation Costs

The distance that a vessel must travel to reach alternative fishing grounds during a closure is likely to differ from the distance it would ordinarily travel to reach fishing grounds within the closed area. This implies a potential change in two major operating costs: fuel and time. The general approach to evaluating these changes is discussed below, focusing on parameters that remain constant regardless of the closure in question. Later sections discuss key parameters unique to each closure.

6.3.3.1 Fuel Costs

One potential impact of relocating effort during a closure is a change in operating costs associated with fuel consumption. This is a function of the change in distance that a vessel operator must steam in order to tend his or her gear, the number of trips taken during the period in question, the vessel's fuel efficiency, and the price of fuel.

The impact of each closure on the distance that vessel operators must steam to tend their gear is determined on a case-by-case basis, taking into consideration the ports from which affected vessels are known or are likely to operate, the distance from these ports to the area affected by the closure, and the distance from these ports to alternative areas. Additional information on the areas to which the analysis assumes vessels would relocate is provided in the detailed discussion of the analysis of each closure. In all cases, however, the method assumes that relocation to the substitute fishing area is temporary, and that the affected vessels will return to their preferred fishing grounds when the closure has ended.

Once the alternative fishing location is identified, the total change in distance traveled depends on the number of fishing trips made during the closure period. The GMRI survey asked fishermen how many trips they took per week during each quarter of the year, dividing the responses by LMA. The analysis uses the survey data to estimate the number of affected trips, tailoring the estimate to correspond with the location and timing of each closure.

Any change in fuel costs also depends on the fuel-efficiency of the affected vessels, which is a function of engine size (horsepower). Information on the engines with which affected vessels are equipped is not available; however, it is possible to estimate the horsepower of affected vessels based on the general correlation between horsepower and vessel length. The analysis employs an equation characterizing this relationship, using it, in combination with an estimate of the average length of affected vessels, to estimate the horsepower of vessels that may relocate their effort while a closure is in effect.

Consistent with data from a recent study by the Maine Maritime Academy (MMA, 2011), the analysis assumes that marine engines burn 0.053 gallons of diesel fuel per hour for each unit of horsepower delivered. The analysis uses this figure to estimate total fuel use per hour for all affected vessels. Based on input from NMFS gear specialists, the analysis also assumes that vessels steam at an average speed of 14 knots. This figure, in combination with data on distances, provides a basis for estimating the change in steaming time to and from alternative

fishing grounds. The analysis then multiplies this figure by the estimate of diesel use per hour to obtain an estimate of the change in fuel use per trip.

Multiplying fuel use per trip by the number of trips and price of diesel fuel yields the change in fuel costs. The analysis is based on a retail diesel price of $3.93 per gallon, the mean of the weekly prices recorded for New England from October 2010 through October 2012 (EIA, 2012). In calculating the change in costs attributable to each regulatory alternative, the analysis uses the pre-tax price of diesel fuel; state and Federal fuel taxes are excluded from the analysis, since these taxes represent a transfer payment rather than a true social cost. The pre-tax fuel price employed in the analysis of each closure varies with the region affected. For instance, in the case of the closures affecting vessels in the Cape Cod region, the price employed is the Massachusetts pre-tax price.

Exhibit 6-15

SUMMARY OF FUEL USE PARAMETERS USED IN CLOSURE COST ASSESSMENT

Parameter	Value/Estimation Method	Source
Horsepower (Lobster Vessels)	HP = -16.3566 + 9.71*(Vessel Length in Feet)	NMFS Permit Data (2011)
Fuel Consumption at Cruising Speed	0.053 gallons/hour/HP	Maine Maritime Academy, 2011
Typical Cruising Speed (Lobster Vessels)	14 knots	NMFS Gear Specialists
Retail Price for Diesel Fuel	$3.93 per gallon	Energy Information Administration, 2012
State and Federal Fuel Taxes: Maine	57.1 cents per gallon	American Petroleum Institute, 2012
State and Federal Fuel Taxes: Massachusetts	47.9 cents per gallon	American Petroleum Institute, 2012
Pre-Tax Diesel Price: Maine	$3.36 per gallon	Derived from above
Pre-Tax Diesel Price: Massachusetts	$3.45 per gallon	Derived from above

6.3.3.2 Time Costs

Steaming to alternate fishing grounds is also likely to alter the time that an affected vessel's captain and crew spend on the water. This change is a function of the change in travel distance and vessel speed (see above). Combining this information with information on the number of trips taken during the closure period yields an estimate of the overall change in time at sea. The analysis values this time as follows:

- The captain's time is valued using the opportunity cost ($22.48 per hour) estimated for the gear conversion analysis discussed above. This figure is a weighted average of wage rates in a variety of alternative occupations identified in the GMRI survey.

- The analysis also incorporates the opportunity cost of sternmen's time. Each hour of this time is valued at $14.53, the mean hourly wage for

Fishers and Related Fishing Workers (BLS, May 2011).[23] The number of sternmen per vessel is estimated based on closure-specific data, as discussed below.

The opportunity cost of labor is an appropriate cost component in a welfare economic framework; however, neither the captain nor sternmen are paid on an hourly basis. Instead, they typically are paid a portion of either the gross or net revenue for each trip. Fishermen's actual take-home pay will vary only to the extent that catch varies. As such, labor costs are an implicit cost rather than an out-of-pocket expense for the vessel operator.

6.3.3.3 Transition Costs

In addition to costs incurred within the closure period, vessels that relocate their effort will likely incur additional costs preceding and following the closure, both in moving their traps to a new location and returning them to their original location when the closure ends. The relocation of gear is likely to take place incrementally, with a portion of the affected traps moved each trip until all traps are relocated.

The fuel and time costs associated with moving gear to and from alternate fishing grounds are a function of several factors:

- Vessel size (and deck space), which determines the number of traps that can be moved in a single trip;
- The total number of traps that must be moved; and
- The additional distance traveled in order to relocate gear each trip.

The total number of traps affected and the quantity of gear that can be transported each trip determines the number of trips that must be made in order to relocate the gear displaced by the closure. Based on discussions with NMFS gear experts, the analysis assumes that most trap/pot vessels can transfer 40 traps per trip; for larger offshore vessels, the analysis assumes relocation of 120 traps per trip. Multiplying the number of trips required by the extra distance traveled each trip allows estimation of the added fuel and time costs, applying the same parameters discussed above.

6.3.3.4 Catch Impacts

It is also possible that relocating vessels will experience a reduction in catch relative to their preferred fishing location inside the closed area. Catch reductions could result because of crowding and heightened competition in the areas to which fishermen relocate; because fishermen are less familiar with the bottom structure or other determinants of catch in the new

[23] No reliable information exists on alternative occupations for sternmen, and the value of the captain's time likely overstates the opportunity cost for sternmen. Hence, the analysis incorporates the average wage rate in the fishing sector.

area; or simply because the alternative fishing grounds available are less productive than those inside the closed area.

The data required to develop a rigorous estimate of potential catch impacts are not available. Such an estimate would require a well-defined characterization of catch rates in the closed area and similar knowledge of conditions (e.g., lobster density) in a specific alternative fishing area. In practice, the potential impact is likely to vary significantly from individual to individual, depending upon the fisherman's expertise and ability to adapt to a new area. As a result, any catch reduction estimated for vessels that relocate their effort is subject to significant uncertainty.

Lacking more specific data, the analysis assumes that vessels which choose to relocate would experience a 20 percent reduction in catch during the closure period. The revenue loss per vessel is estimated by multiplying the gross revenue per trap figures (summarized earlier in Exhibit 6-14) by the number of traps fished per vessel.

6.3.3.5 Caveats

In addition to the assumptions noted above, the analysis of relocation costs is based on a number of other assumptions that are subject to considerable uncertainty. These include:

- The assumption that fishermen would reconfigure their gear, as necessary, to meet the minimum trawl length requirement in any area to which they relocate, but would incur no gear conversion costs beyond those associated with meeting these requirements;

- The assumption that fishermen who relocate their effort would continue to fish the same number of traps they used in the closed area.

- The assumption that fishermen will continue to make the same number of fishing trips while using the alternate location.

The net effect of these assumptions on the cost estimates is unclear. The methodological discussion for each of the individual closures highlights additional uncertainties associated with the selection of specific relocation sites for affected vessels.

6.3.4 Analysis of Specific Closure Scenarios

Vessel operators are likely to respond to the closure of a particular area in the way they believe would have the least adverse impact on their income, subject to financial, regulatory, and other constraints on the options available to them. Their responses will depend not only on the nature of their fishing operations (e.g., fishery, vessel type, quantity of affected gear) but also on the features of the closure itself (area and time period). The variety of possible outcomes and the large number of potentially affected fishermen precludes a vessel-by-vessel analysis of likely responses.

As noted above, this analysis examines two general response scenarios to evaluate the potential impact of closures: relocation or suspension of fishing effort. Within that framework, however, the analysis of economic impacts seeks to recognize key variables that may differ from case to case, such as the number of vessels a particular closure would affect, the scale of the fishing operations affected, regional differences in the prices that affected vessels may receive for their catch, and the availability of alternative fishing sites. The sections below discuss each closure individually, focusing on unique aspects of the approach to analyzing their potential impacts.

6.3.4.1 Jordan Basin Restricted Area

The closure of the Jordan Basin Restricted Area to trap/pot gear from November through January is an element of Alternatives 4 and 5. As shown in Exhibit 6-16, the closure would extend over a 725 square-mile area in the northern portion of LMA 3, immediately adjacent to Maine Lobster Zones C and D. A small portion of Zone C, which is located in LMA 1, is also included in the closure area.

The Vertical Line Model estimates that on average five vessels fish in the Jordan Basin Restricted Area during the period the area would be closed: one in LMA 3 and four in LMA 1.[24] The distinction between LMA 3 and LMA 1 waters has important implications in estimating closure costs, since vessels that operate in LMA 3 are typically larger, fish a larger number of traps, and harvest more lobster per trap during the closure period than vessels in LMA 1. Exhibit 6-17 summarizes the parameters employed to estimate costs for each category of vessel.

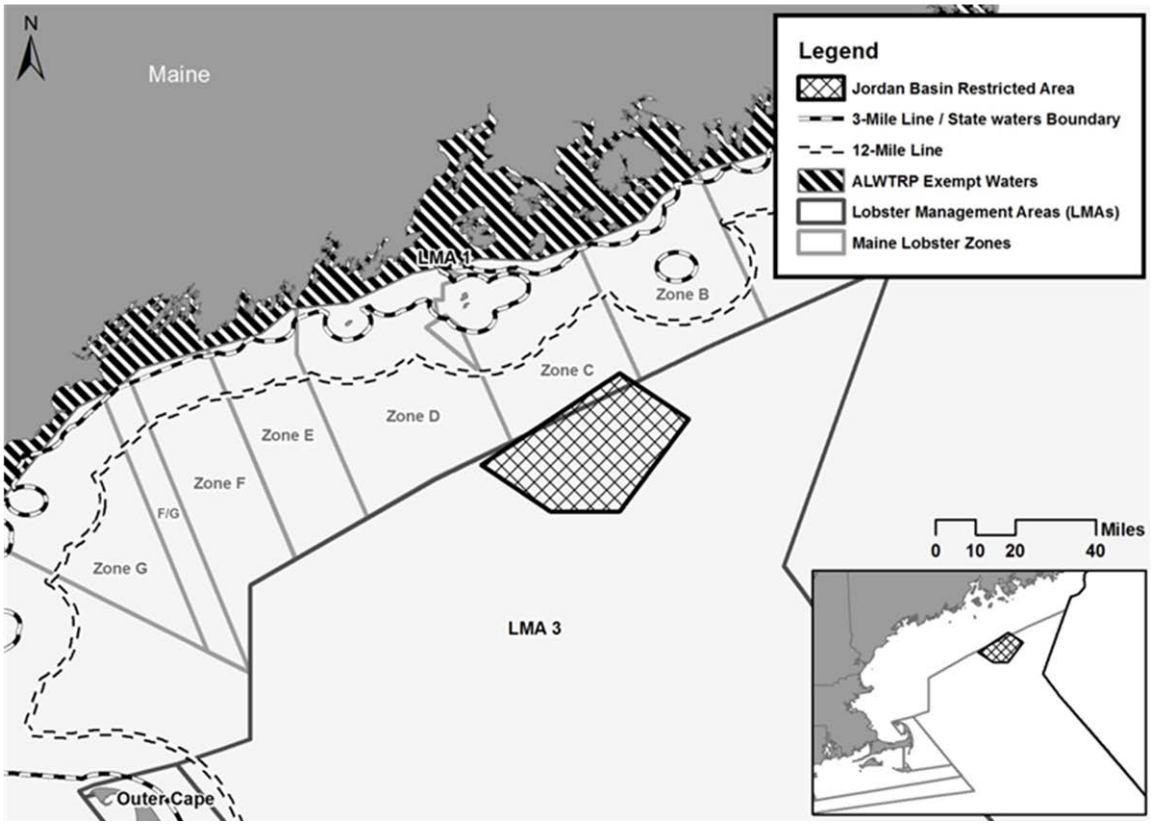
Detailed information on lobster vessels active in the Jordan Basin area is generally not available, making it difficult to predict how vessels potentially affected by a closure would respond.[25] In the absence of better information, the analysis takes a bounding approach to assessing the decision to relocate or suspend fishing. In the upper bound, the analysis assumes that all affected vessels would suspend fishing during the closure and forgo the revenue (net of operating cost savings) on the lobster they would have otherwise landed. This is a highly conservative assumption, since vessels operating in these waters would likely be capable of reaching alternate fishing grounds. The incentive for these vessels to relocate their traps rather than suspend operations from November through January is also likely to be strong, since prices during this period tend to be higher than in the summer or early fall.

[24] The number of vessels that fish a portion of their gear in the Jordan Basin area may exceed this estimate. For purposes of analysis, however, the estimate of affected vessels is presented on a full-time equivalent basis. For additional information on the characterization of vessel activity, see the documentation for the Vertical Line Model.

[25] Unlike other commercial fishing permits, Federal lobster permits currently impose no trip report requirements. Information on the location of trips taken by vessels that hold Federal lobster permits is limited to those that also hold permits for fisheries that require trip reports. The Vertical Line Model assumes that the activity of vessels that do not file trip reports is evenly distributed across the LMA for which the permits were issued. The estimate of activity in the Jordan Basin area – particularly in LMA 1 – is based primarily on this approach. For additional information, see the documentation for the Vertical Line Model.

Exhibit 6-16

JORDAN BASIN RESTRICTED AREA



As an alternative to suspending operations, the lower bound of the analysis assumes that the vessels affected by the Jordan Basin closure would relocate their effort to new grounds. Specifically, the offshore vessel would relocate its effort to LMA 3 waters immediately outside the closed area. Likewise, the LMA 1 vessels would relocate their effort to waters north and east of the closed area, in Maine Lobster Zone C. The analysis estimates the additional time and fuel costs these vessels would incur each year to transfer their gear to these alternative locations, as well as the costs they would incur to return the gear to the restricted area when the closure period ends. The additional distance traveled each trip in moving gear between the restricted and unrestricted areas is estimated as the average distance from the centroid of the closed area to the surrounding waters; this distance is developed separately for LMA 3 and LMA 1 vessels. Absent information on the home ports of the affected vessels, the analysis assumes that the relocation of gear has no material effect on steaming time to and from port; i.e., no additional fuel or time costs are incurred when fishing in the new locations.

Exhibit 6-17

SUMMARY OF PARAMETERS AFFECTING CLOSURE COSTS: JORDAN BASIN

Area	Parameter	Value	Basis
LMA 3	Closure Period	November - January	See Chapter 3
	Number of Affected Lobster Vessels (Full-Time Equivalent)	1	Vertical Line Model
	Percent of Vessels Relocating	Lower: 100% Upper: 0%	Bounding assumption
	Avg. Vessel Length (feet)	54	NMFS Permit data
	Avg. Vessel Horsepower	508	Estimated based on vessel length
	New Location(s)	LMA 3 waters surrounding closed area	GIS analysis
	Avg. Change in Roundtrip (miles)	0	N.A.
	Trips per Week	2.2	Weighted average for LMA 3 vessels in QI and QIV; GMRI, 2006
	Crew per Vessel (excluding captain)	2	GMRI, 2006
	Traps per Vessel	1,200	NMFS gear team; Vertical Line Model
	Traps Transferred per Trip	120	NMFS gear team
	Trips Required to Relocate Gear	20	(Traps/#Transferred per Trip)*2
	Distance Traveled to Relocate Gear (miles/trip)	18.1	GIS analysis
	Percent of Vessels Suspending Fishing	Lower: 0% Upper: 100%	Bounding assumption
	Revenue Lost per Trap, Net of Operating Cost Savings, when Vessels Suspend Fishing	$30.81	Analysis of NMFS Dealer data; average catch per trap for LMA 3 vessels in GMRI survey; operating costs based on Thunberg (2007)
	Net Revenue Lost per Trap when Fishing Alternate Areas	$14.00	Assumes 20 percent reduction in baseline revenue per trap; revenue per trap determined by analysis of GMRI survey data and NMFS Dealer data

Exhibit 6-17
(continued)

SUMMARY OF PARAMETERS AFFECTING CLOSURE COSTS: JORDAN BASIN

Area	Parameter	Value	Basis
LMA 1	Closure Period	November - January	See Chapter 3
	Number of Affected Lobster Vessels (Full-Time Equivalent)	4	Vertical Line Model
	Percent of Vessels Relocating	Lower: 100% Upper: 0%	Bounding assumption
	Avg. Vessel Length (feet)	39	Maine DMR Annual Logs Survey and Permit data
	Avg. Vessel Horsepower	362	Estimated based on vessel length
	New Location(s)	LMA 1 waters surrounding closed area	GIS analysis
	Avg. Change in Roundtrip (miles)	0	N.A.
	Trips per Week	3.16	Weighted average for LMA 1 vessels in QI and QIV; GMRI, 2006
	Crew per Vessel (excluding captain)	1.5	GMRI, 2006 and Maine DMR Annual Logs Survey and Permit data
	Traps per Vessel	484	Maine DMR Annual Logs Survey
	Traps Transferred per Trip	40	NMFS gear team
	Trips Required to Relocate Gear	24	(Traps/#Transferred per Trip)*2
	Distance Traveled to Relocate Gear (miles/trip)	8.6	GIS analysis
	Percent of Vessels Suspending Fishing	Lower: 0% Upper: 100%	Bounding assumption
	Revenue Lost per Trap, Net of Operating Cost Savings, when Vessels Suspend Fishing	$29.74	Analysis of NMFS Dealer data; average catch per trap for LMA 1 vessels in GMRI survey; operating costs based on Thunberg (2007)
	Net Revenue Lost per Trap when Fishing Alternate Areas	$9.15	Assumes 20 percent reduction in baseline revenue per trap; revenue per trap determined by analysis of GMRI survey data and NMFS Dealer data

For purposes of calculating the impact of relocating gear on fishermen's time, the LMA 3 vessel is assumed to carry a captain and two sternmen. The average number of trips made each week (2.2) is based on data provided by LMA 3 respondents to the GMRI lobster survey; the figure is a weighted average of the frequency of trips reported for the fourth and first quarters of the year (GMRI, 2006).[26] For LMA 1 vessels, the same sources and approach are used to calculate trips per week (see Exhibit 6-17). Average crew (1.5) is based on crew data from the GMRI lobster survey as well as Maine permit data, which suggest that about half of the vessels in Zone C Federal waters fish with one sternman, while most others fish with two.

6.3.4.2 Cape Cod Restricted Areas

The regulatory alternatives under consideration incorporate several closures affecting waters around Cape Cod:

- **Alternative 3** – the closure of the Cape Cod Bay Restricted Area from February through April;
- **Alternatives 4 & 5** – the closure of Massachusetts Restricted Area #1 from January through April; and
- **Alternatives 6 Draft & 6 Preferred** – the closure of Massachusetts Restricted Area #2 from January through April.

Exhibit 6-18 shows the boundaries of these areas, while Exhibit 6-19 summarizes key features of the closures. The general approach used to assess the impact on affected vessels is the same for all the Cape closures; therefore, this section discusses the closures as a group.

As with other closures, the analysis of the impact of the Cape Cod closures first considers the costs that affected vessels would incur if they chose to suspend fishing for the duration of the closure. This approach provides an upper-bound estimate of potential impacts, since it assumes that fishermen would forgo all revenue (net of operating cost savings) for the catch normally harvested during the closure period.

For a lower-bound estimate of closure impacts, the analysis assumes that at least a portion of the affected vessels would relocate their effort while the closure is in effect. Massachusetts DMF Catch Report data from 2009 provide the foundation for this analysis. The data provide information on approximately 80 percent of commercial fishing vessels that landed their catch in Massachusetts in 2009.[27] Vessel operators reported a variety of information, including the statistical reporting areas (SRAs) and months in which they fished. The analysis employs this information to help predict likely relocation responses for affected vessels.

[26] The GMRI survey included only 33 respondents fishing in LMA 3. This small sample size may affect the reliability of the parameters used to characterize impacts on offshore lobster vessels, although the direction of the bias is unclear.

[27] The data exclude 20 percent of active vessels that participated in a trip-level pilot reporting program in 2009.

Different methods are applied for vessels holding only a state permit versus those that hold a Federal permit. These methods are discussed further below.

Exhibit 6-18

CAPE COD CLOSURES

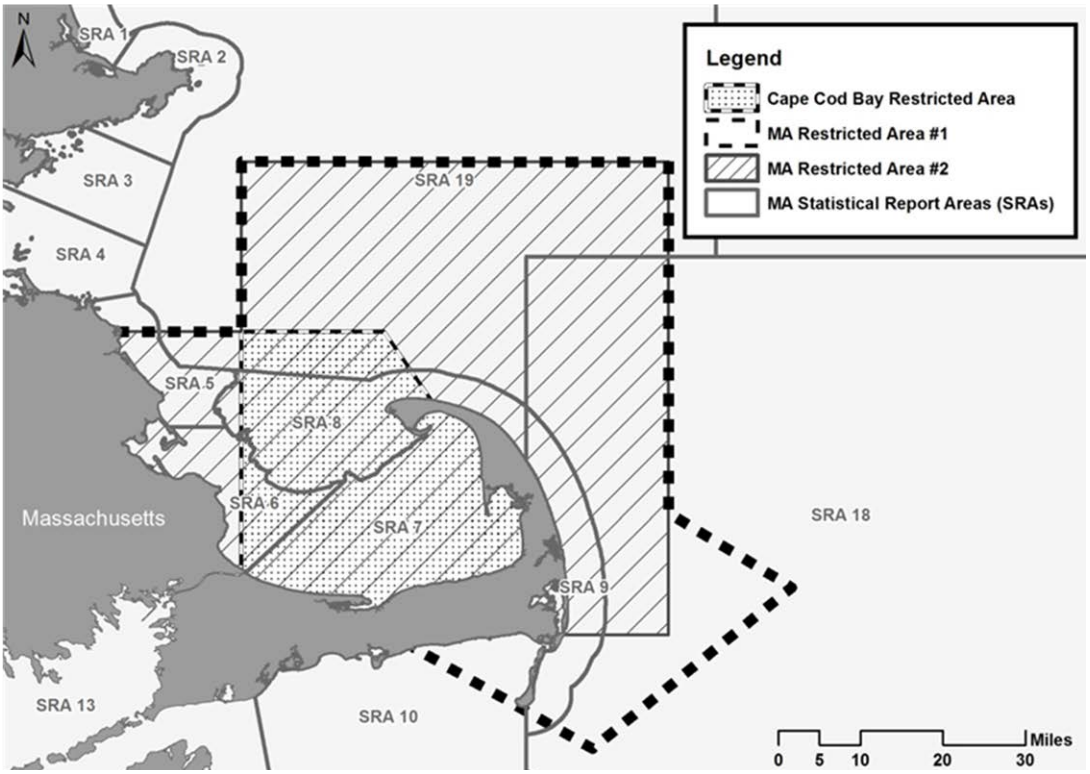


Exhibit 6-19

FEATURES OF CAPE COD CLOSURES

Feature	CCB Restricted Area	Massachusetts Restricted Area #1	Massachusetts Restricted Area #2
Regulatory Alternative	3	4 & 5	6 Draft and 6 Preferred
Closure Period	February - April	January - April	January - April
Size (square miles)	644	2,464	2,161
Statistical Reporting Areas (MA SRAs with Over 25% of Waters Inside Closed Area)	6, 7, 8, 19	5, 6, 7, 8, 9, 10, 18, 19	5, 6, 7, 8, 9, 18, 19

Relocation of Vessels Holding Only a State Permit

Vessels holding only a state permit are authorized to fish exclusively in Massachusetts SRAs 1 through 14 (the inshore SRAs). Many of these vessels are relatively small, and their ability to relocate their effort within state waters – particularly in the winter and early spring –

may be constrained by safety considerations and practical limits on their range. To assess the potential for affected vessels to relocate, the analysis examines the distribution of their current effort, as reflected in the 2009 Catch Report data. If a vessel reports fishing in one or more SRAs that would remain open (in whole or in part) while a restricted area is closed, the analysis assumes that it would be possible for that vessel to relocate all of its effort outside the restricted area while the closure is in effect. Conversely, if the data show that, during the period of interest, a vessel fishes solely in SRAs that fall wholly within a restricted area, the analysis assumes that it would not be feasible for that vessel to relocate. SRA 7, for example, is fully contained within the Cape Cod Bay Restricted Area; the analysis assumes that all vessels that report fishing exclusively in this area from February through April would be forced to suspend fishing while the Cape Cod Bay Restricted Area is closed. Likewise, in the case of Massachusetts Restricted Areas #1 and #2, the analysis assumes that vessels that fish solely in SRAs 6, 7, and/or 8 from January through April would be forced to suspend fishing while these areas are closed. Exhibit 6-20 shows the resulting estimates of the percentage of affected vessels that would suspend fishing in response to each closure, as well as the percentage the analysis assumes could relocate.

Exhibit 6-20

PERCENT OF AFFECTED VESSELS IN STATE WATERS THAT ARE ASSUMED TO RELOCATE THEIR EFFORT DURING CAPE COD CLOSURES

Response	CCB Restricted Area	Massachusetts Restricted Area #1	Massachusetts Restricted Area #2
Suspend Fishing	17.1%	46.6%	47.4%
Relocate	82.9%	53.4%	52.6%

The analysis also relies on the 2009 Catch Report data to identify the SRAs to which vessels deemed able to relocate are likely to move their gear. The approach assumes that vessels will relocate their gear to new areas in proportion to their current distribution of gear, adjusting that distribution to take into account the share of each SRA that would remain open while a particular closure is in effect. This assessment involves the following steps:

- First, the analysis draws on the Catch Report data to develop a matrix illustrating the distribution of activity by SRA for vessels whose effort would be partially displaced by the closure. This distribution focuses solely on vessel activity during the months the closure would be in effect.

- The analysis adjusts this distribution to take into account the impact of the closure on the proportion of each SRA that remains open to fishing. For example, under Alternative 3, the closure of the Cape Cod Bay Restricted Area from February through April would leave 42 percent of SRA 6 open to fishing. Thus, the analysis adjusts the baseline distribution of vessel activity in SRA 6 by multiplying the baseline value by a factor of 0.42. Values for SRAs that would be entirely closed throughout the closure period are set to zero.

- The analysis then converts the resulting set of values to a frequency distribution by dividing the value for each SRA by the sum of the values across all SRAs. The results indicate the relative distribution of activity for affected vessels outside the restricted area, providing the basis for redistributing the effort the closure would displace.

Exhibit 6-21 shows the results of this process for each of the Cape Cod closures. The exhibit indicates that the majority of the effort displaced by the closure of the Cape Cod Bay Restricted Area would likely relocate to SRA 6. In contrast, the majority of the effort displaced by the closure of Massachusetts Restricted Area #1 or #2 would likely relocate to SRAs 4 and 5.

Exhibit 6-21

REDISTRIBUTION OF EFFORT FOR STATE PERMITTED VESSELS AFFECTED BY CAPE COD CLOSURES

SRA	CCB Restricted Area	Massachusetts Restricted Area #1	Massachusetts Restricted Area #2
4	5.4%	43.8%	41.8%
5	26.3%	51.4%	51.2%
6	59.2%	0.0%	0.0%
7	0.0%	0.0%	0.0%
8	7.7%	0.0%	0.0%
9	1.4%	2.2%	6.9%
10	0.0%	2.6%	0.0%

Once the locations for the redistribution of gear are established, the analysis uses GIS techniques to estimate impacts on trip distances and resulting changes in fuel and time costs. The closure cost assessment first requires information on the incremental distance that vessels will travel when moving traps to a new location. This extra distance is estimated by determining the distance from the centroid of the closed portion of each SRA to the centroid of the open portion of each SRA to which gear is assumed to be moved. The frequency distributions discussed above are then used to calculate the weighted average distance that affected vessels would be required to travel in order to relocate their gear.

The impact of each closure on the distance that displaced vessel operators must steam to tend their gear is determined as follows:

- First, the analysis calculates the weighted average distance from each relocating vessel's homeport to the closed portion of the SRA that the vessel vacates.

- Next, the analysis calculates the weighted average distance from each vessel's homeport to the centroid of the open portion of the SRA(s) to which it is assumed to relocate its displaced effort.

- Finally, the difference between these values serves as the estimate of the incremental distance traveled for each round trip.

It is important to note that this methodology yields small or even negative incremental travel distances for some vessels. This issue is explored further below.

Relocation of Vessels that Hold a Federal Permit

The Cape Cod closures would affect relatively small portions of Massachusetts SRAs 18 and 19, which lie in Federal waters. The Massachusetts Catch Report data are unlikely to reflect all activity in these waters; in particular, the data will not capture the activity of vessels that do not land their catch in Massachusetts. The available Federal data are also incomplete, since vessels that hold only a Federal lobster permit are not subject to Vessel Trip Report (VTR) requirements. In the absence of more complete data on activity in SRAs 18 and 19, the analysis employs a simplified approach to characterize the potential relocation of effort by vessels that hold a Federal permit. Specifically, the analysis assumes that these vessels will relocate their gear to the perimeter of the closed area, while remaining within the SRA originally fished. The distance that vessels travel when relocating their gear before and after the closure is the average of the distance from the centroid of the closed portion of each SRA to the perimeter of the closed area. The incremental change in the distance that vessel operators must travel to tend their gear is calculated using the method described above for vessels that hold only a state permit; in this case, however, the analysis is based on the homeports of the vessels that hold a Federal permit and are known to fish in SRAs 18 or 19.

Summary of Cape Cod Closure Parameters

Exhibit 6-22 summarizes the final set of parameters used to estimate costs associated with each of the Cape Cod closures. The travel distances developed via the methods discussed above warrant discussion. In all cases, the impact of relocation on the distance that vessel operators must travel to tend their gear is either small or negative. A reduction in travel distances reflects the possibility that some vessel operators may respond to a closure by relocating their gear closer to their homeport. While somewhat counterintuitive, this outcome is possible when considering the logical set of alternatives open to affected vessels.

Exhibit 6-22

SUMMARY OF PARAMETERS AFFECTING CLOSURE COSTS: CAPE COD CLOSURES

Vessel Category	Parameter	CCB Restricted Area	Massachusetts Restricted Area #1	Massachusetts Restricted Area #2	Basis
Vessels Holding Only a State Permit	Closure Period	February – April	January – April	January – April	See Chapter 3
	Number of Affected Lobster Vessels (Full-Time Equivalent)	9	32	32	Vertical Line Model
	Percent of Vessels Relocating	Lower: 82.9% Upper: 0%	Lower: 53.4% Upper: 0%	Lower: 52.6% Upper: 0%	Bounding assumption, based in part on analysis of DMF Catch Report data (2009)
	Avg. Vessel Length (feet)	33	34	34	Analysis of DMF Catch Report data appended with vessel permit data (2009)
	Avg. Vessel Horsepower	304	314	314	Estimated based on vessel size; relationship developed from NMFS Permit data
	New Location(s)	Proportional to baseline gear distribution outside closed area			GIS analysis using DMF Catch Report data
	Avg. Change in Roundtrip (miles)	-11.6	-8.0	-3.2	GIS analysis
	Trips per Week	2.3	2.18	2.18	GMRI Survey (2006); average for closure period
	Crew per Vessel (excluding captain)	1	1	1	Analysis of DMF Catch Report data appended with vessel permit data (2009)
	Traps per Vessel	243	252	253	Analysis of DMF Catch Report data (2009)
	Traps Transferred per Trip	40	40	40	NMFS gear team
	Trips Required to Relocate Gear	12	13	13	(Traps/#Transferred per Trip)*2
	Distance Traveled to Relocate Gear (miles/trip)	21.2	38.2	35.2	GIS analysis
	Percent of Vessels Suspending Fishing	Lower: 17.1% Upper: 100%	Lower: 46.6% Upper: 100%	Lower: 47.4% Upper: 100%	Bounding assumption, based in part on analysis of DMF Catch Report data (2009)
	Revenue Lost per Trap, Net of Operating Cost Savings, when Vessels Suspend Fishing	$8.74	$19.31	$19.31	Prices based on analysis of NMFS Dealer data; average catch per trap based on data analysis provided by MA DMF
	Net Revenue Lost per Trap when Fishing Alternate Areas	$2.69	$5.74	$5.74	Assumes 20 percent reduction in baseline revenue per trap; revenue per trap determined by analysis of MA DMF data on catch per trap and NMFS Dealer data
Vessels with a Federal Permit	Closure Period	February – April	January – April	January – April	See Chapter 3
	Number of Affected Lobster Vessels (Full-Time Equivalent)	7	78	77	Vertical Line Model
	Percent of Vessels Relocating	Lower: 100% Upper: 0%	Lower: 100% Upper: 0%	Lower: 100% Upper: 0%	Bounding assumption

Exhibit 6-22

SUMMARY OF PARAMETERS AFFECTING CLOSURE COSTS: CAPE COD CLOSURES

Vessel Category	Parameter	CCB Restricted Area	Massachusetts Restricted Area #1	Massachusetts Restricted Area #2	Basis
	Avg. Vessel Length (feet)	39	40	40	Analysis of DMF Catch Report data appended with vessel permit data (2009)
	Avg. Vessel Horsepower	362	372	372	Estimated based on vessel size; relationship developed from NMFS Permit data
	New Location(s)	Perimeter of closed area, remaining in same SRA			GIS analysis
	Avg. Change in Roundtrip (miles)	0.8	0.6	0.4	GIS analysis
	Trips per Week	2.3	2.18	2.18	GMRI Survey (2006); average for closure months
	Crew per Vessel (excluding captain)	1	1	1	Analysis of DMF Catch Report data appended with vessel permit data (2009)
	Traps per Vessel	446	428	428	Analysis of DMF Catch Report data (2009)
	Traps Transferred per Trip	40	40	40	NMFS gear team
	Trips Required to Relocate Gear	22	21	21	(Traps/#Transferred per Trip)*2
	Distance Traveled to Relocate Gear (miles/trip)	6.6	21.3	21.2	GIS Analysis
	Percent of Vessels Suspending Fishing	Lower: 0% Upper: 100%	Lower: 0% Upper: 100%	Lower: 0% Upper: 100%	Bounding assumption
	Revenue Lost per Trap, Net of Operating Cost Savings, when Vessels Suspend Fishing	$8.74	$19.31	$19.31	Prices based on analysis of NMFS Dealer data; Average catch per trap based on data analysis provided by MA DMF
	Net Revenue Lost per Trap when Fishing Alternate Areas	$2.69	$5.74	$5.74	Assumes 20 percent reduction in baseline revenue per trap; revenue per trap determined by analysis of MA DMF data on catch per trap and NMFS Dealer data

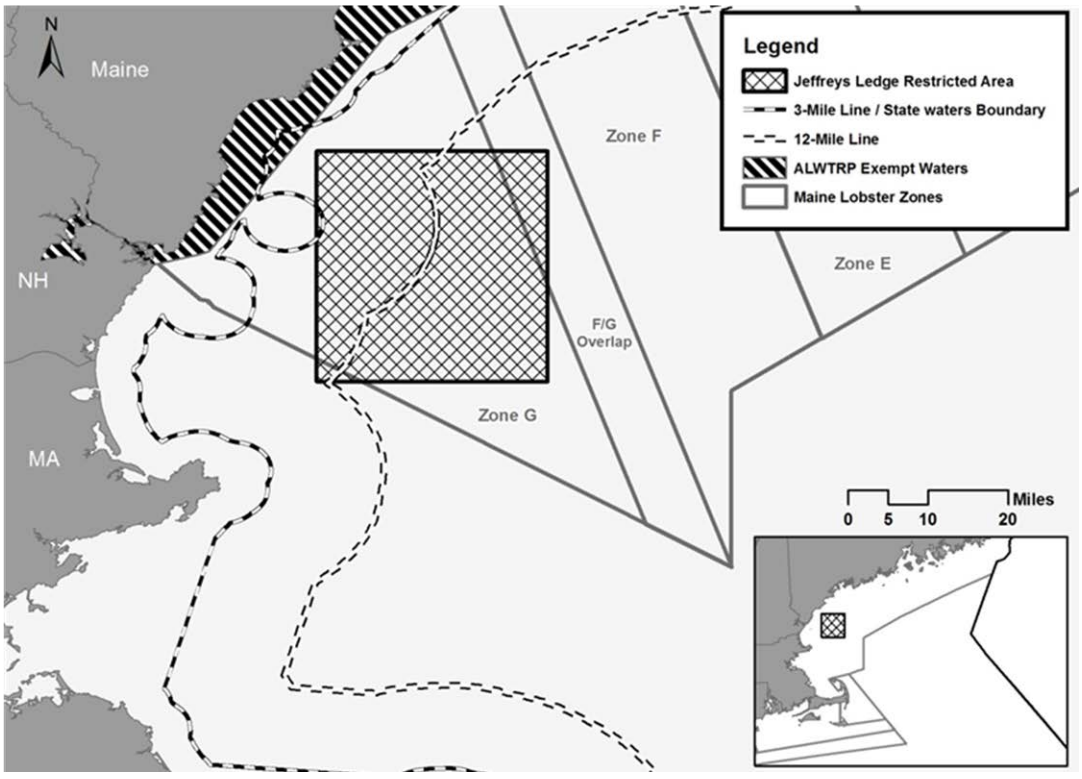
6.3.4.3 Jeffreys Ledge Restricted Area

The closure of the Jeffreys Ledge Restricted Area to trap/pot gear from October through January is an element of Alternatives 4 and 5. As shown in Exhibit 6-23, the closure would extend over a 607 square-mile area off the coast of southern Maine and New Hampshire. Most of the affected area lies in the Federal portion of Maine Lobster Zone G, which is located in LMA 1.

The timing and location of the Jeffreys Ledge closure suggest a potential for significant economic impacts. The fall season is a productive one for New England's lobster fishery, particularly in southern Maine, where weather conditions at that time of year are milder than in down east coastal areas. Available data for LMA 1 indicate that lobster vessels catch an average of over 19 pounds of lobster per trap during the fourth quarter of the year, making this period nearly as productive as the third-quarter summer season.

Exhibit 6-23

JEFFREYS LEDGE RESTRICTED AREA



As a monthly average from October through January, the analysis estimates that on a full-time equivalent basis, approximately 69 lobster vessels are active in the Jeffreys Ledge Restricted Area. This estimate, however, is based on relatively incomplete data. Many vessels that hold LMA 1 lobster permits are not required to file vessel trip reports. As a result,

comprehensive information on lobster vessel activity within the area is unavailable. Some insight, however, can be obtained by reviewing the available VTR data; Maine's Annual Logs Survey, in combination with state permit data from the Maine Department of Marine Resources; and Massachusetts Catch Report data, combined with state permit information from the Massachusetts Division of Marine Fisheries. These sources suggest the following:

- The vessels that would be affected by the closure originate primarily from Maine. Relatively few potentially affected vessels – perhaps no more than one to three – appear to be from Massachusetts. In addition, the VTR data suggest that some New Hampshire vessels may be affected – between two to four, depending on the month.

- The Maine lobster vessels originate in several homeports along the southern Maine coast from Portland to the New Hampshire border, with Kennebunkport, Ogunquit, and Kittery accounting for the largest share of vessels. The New Hampshire vessels originate from or near Portsmouth Harbor.

- Based on Maine permit data, lobster vessels active in the closure area vary in size, ranging from approximately 25 to 45 feet in length, and averaging about 36 feet.

Given the heterogeneous nature of the affected vessels, predicting the likely response to the closure of Jeffreys Ledge is difficult. In the absence of better information, the analysis takes a bounding approach to assessing the decision to relocate or suspend fishing. In the upper bound, the analysis assumes that all affected vessels would suspend fishing during the closure and forgo the revenue (net of operating cost savings) on the lobster they would have otherwise landed. This is a highly conservative assumption, since vessels operating in the area are likely to be capable of reaching alternate fishing grounds. The incentive for these vessels to relocate their traps rather than suspend operations from October through January is also likely to be high, since the lobster catch during this period is an important source of revenue.

As an alternative, the lower bound of the analysis assumes that the vessels affected by the Jeffreys Ledge closure would relocate their effort to the unaffected portion of Federal waters in Maine Lobster Zone G. The analysis estimates the additional time and fuel costs these vessels would incur each year to transfer their gear to these waters, as well as the costs they would incur to return the gear to the restricted area when the closure period ends. It also analyzes the impact of relocation on the distance vessel operators must travel to tend their gear while the restricted area is closed, and the resulting impact on time and fuel costs. Estimates of the impact of the closure on the distances that affected vessels must travel are calculated as follows:

- The average distance that vessels must travel in moving gear between the restricted and unrestricted areas is the distance from the centroid of the closed portion of Zone G (Federal) to the centroid of the unrestricted portion of Zone G (Federal).

- The impact of relocating on the distance that vessel operators must travel to tend their gear is the difference between (1) the average distance from

relevant ports in Maine and New Hampshire to the centroid of the closed portion of Zone G (Federal) and (2) the average distance from these same ports to the centroid of the unrestricted portion of Zone G (Federal). This analysis includes all major fishing ports from Portland, Maine south to Portsmouth, New Hampshire.

The average number of trips taken per week (3.3) is based on GMRI survey data for lobstermen in LMA 1 during the months the closure would be in effect (GMRI, 2006). Exhibit 6-24 summarizes these and other relevant parameters used in estimating the costs associated with the Jeffreys closure.

Exhibit 6-24

SUMMARY OF PARAMETERS AFFECTING CLOSURE COSTS: JEFFREYS LEDGE

Parameter	Value	Basis
Closure Period	October - January	See Chapter 3
Number of Affected Lobster Vessels	69	Vertical Line Model
Percent of Vessels Relocating	Lower: 100% Upper: 0%	Bounding assumption
Avg. Vessel Length (feet)	36	Maine DMR Annual Logs Survey and Permit data
Avg. Vessel Horsepower	333	Estimated based on vessel size; relationship developed from NMFS Permit data
New Location(s)	Zone G Federal waters remaining open	GIS analysis
Avg. Change in Roundtrip (miles)	9.4	GIS analysis
Trips per Week	3.3	Average for LMA 1 vessels in closure months; GMRI, 2006
Crew per Vessel (excluding captain)	1	GMRI, 2006
Traps per Vessel	375	Maine DMR Annual Logs Survey and Permit data; vessels in Maine Zone G, Federal waters
Traps Transferred per Trip	40	NMFS gear team
Trips Required to Relocate Gear	19	(Traps/#Transferred per Trip)*2
Distance Traveled to Relocate Gear (miles/trip)	22.1	GIS Analysis
Percent of Vessels Suspending Fishing	Lower: 0% Upper: 100%	Bounding assumption
Revenue Lost per Trap, Net of Operating Cost Savings, when Vessels Suspend Fishing	$43.36	Average catch per trap for LMA 1 vessels in GMRI survey; prices based on analysis of NMFS Dealer data
Net Revenue Lost per Trap when Fishing Alternate Areas	$13.34	Assumes 20 percent reduction in baseline revenue per trap; revenue per trap determined by analysis of GMRI survey data and NMFS Dealer data

6.3.4.4 Summary

Exhibit 6-25 summarizes key aspects of each of the potential closures, including their temporal and geographic scope; estimates of the number of vessels and traps they would

displace; and estimates of the landings and revenues currently attributable to activity in these areas during the months the closures would be in effect.

Exhibit 6-25

OVERVIEW OF POTENTIAL CLOSURES

Area	Period	Size (sq. mi.)	Estimate of Activity Affected			
			Vessels	Traps	Landings (pounds)	Gross Revenues
CCB Restricted Area	Feb 1 – Apr 30	644	16	5,309	15,579	$71,353
Jeffreys Ledge	Oct 1 – Jan 31	607	69	25,875	543,211	$1,726,121
Jordan Basin	Nov 1 – Jan 31	725	5	3,136	56,023	$172,596
Massachusetts Restricted Area #1	Jan 1 – Apr 30	2,464	110	41,448	264,063	$1,190,387
Massachusetts Restricted Area #2	Jan 1 – Apr 30	2,161	109	41,052	261,532	$1,179,013

6.4 ANALYTIC APPROACH: GEAR MARKING REQUIREMENTS

With the exception of Alternative 1, each of the regulatory alternatives under consideration specifies revised gear marking requirements. As explained in greater detail in Chapter 3, the proposed gear marking scheme calls for three 12-inch marks per vertical line, adhering to a regional color-coding system. The requirements would apply to all fisheries subject to the ALWTRP, including the lobster, OTP, blue crab, and gillnet fisheries. Under Alternatives 2, 3, 4, 5, and 6 (Draft), the requirements would apply to gear set in all non-exempt waters, as well as exempt waters in Maine and New Hampshire. Under Alternative 6 (Preferred), gear set in Maine waters landward of the ALWTRP exemption line would remain exempt from gear marking requirements.

The analysis relies on the Vertical Line Model to estimate the number of vertical lines it would be necessary to mark under Alternatives 2 through 6 (Preferred). In each case, the estimate of gear marking demands is consistent with the new trawling requirements the alternative specifies. Aggregate gear marking costs are based on numbers of active vessels estimated in the Vertical Line Model.

The estimate of gear marking costs considers both the cost of material/equipment and labor costs. To model these costs, the analysis assumes that lines would be marked using gear marking whips that would be woven into the line. Whips are currently available at a cost of $0.06 each; thus, given the need to mark in three locations, the equipment cost for gear marking is estimated at $0.18 for each vertical line. NMFS gear experts estimate that each whip would take roughly five minutes to install. At an implicit value of $22.48 for an hour of a labor (see above), this translates to a labor cost of $1.87 per mark, or $5.62 for each vertical line. The

resulting total cost – $5.80 per vertical line – is amortized over the useful life of the line to develop an annualized estimate of gear marking costs.[28]

6.5 ESTIMATED COMPLIANCE COSTS BY ALTERNATIVE

As noted in the introduction to this chapter, the economic analysis is designed to measure regulatory compliance costs on an incremental basis – i.e., to measure the *change* in costs associated with a *change* in regulatory requirements. If no change in regulatory requirements is imposed – as would be the case under Alternative 1 – the economic burden attributable to the ALWTRP would be unaffected. Thus, Alternative 1 would impose no additional costs on the regulated community.

The analysis of the remaining alternatives measures their economic impact relative to the status quo – i.e., relative to the no action alternative. The impact of these alternatives can be characterized in several ways, including the number of vessels that would need to take action in order to comply with new requirements. As shown in Exhibit 6-26, the gear marking provisions of Alternatives 2 through 6 (Preferred) would affect the largest number of fishing operations. This figure varies little across the alternatives, except in the case of Alternative 6 (Preferred); that alternative removes the requirement that Maine vessels in ALWTRP-exempt waters mark gear. As a result, the number of affected vessels is reduced from approximately 6,100 to 4,000.

The gear configuration provisions of these alternatives also affect a large number of vessels, primarily lobster vessels that would need to reconfigure their gear in order to meet trawling requirements. Under Alternatives 2 and 4, the analysis estimates that approximately 1,800 vessels would be required to reconfigure their gear; this figure falls to approximately 1,400 under Alternatives 3, 5, 6 (Draft), and 6 (Preferred). In contrast, the provisions for fishing area closures specified under Alternatives 3 through 6 (Preferred) are estimated to affect no more than 200 vessels. The impact on these vessels, however, could be significant.

[28] Under Alternatives 2 through 6 (Draft), the marking requirements for gear fished in exempt portions of Maine state waters would differ from the requirements for gear fished in non-exempt areas. Similarly, under Alternatives 3, 5, and 6 (Draft and Preferred), the marking requirements for gear fished in New Hampshire state waters would differ from the requirements for gear fished in non-exempt areas. Fishermen who move gear between exempt and non-exempt waters over the course of a year would be required to comply with the applicable gear marking provisions for each area, either by maintaining separate sets of vertical line or by re-marking their line before it is moved. The estimate of gear marking costs does not take this issue into account. To the extent that these circumstances arise, the analysis may understate the costs associated with the introduction of new gear marking requirements.

Exhibit 6-26

NUMBER OF VESSELS AFFECTED BY NEW REQUIREMENTS UNDER EACH REGULATORY ALTERNATIVE

Regulatory Alternative	Gear Configuration	Closures	Gear Marking	Total
Alternative 1 (No Action)	0	0	0	0
Alternative 2	1,817	0	6,129	6,129
Alternative 3	1,392	16	6,129	6,129
Alternative 4	1,834	184	6,122	6,122
Alternative 5	1,400	184	6,122	6,122
Alternative 6 (Draft)	1,364	109	6,129	6,129
Alternative 6 (Preferred)	1,357	109	4,006	4,006

Note: A single vessel may be affected by multiple new requirements; hence, the totals presented here are not the simple sum of the gear configuration, closure, and gear marking categories.

Exhibit 6-27 summarizes the estimate of annual compliance costs for each of the alternatives. Several findings are noteworthy:

- Of the action alternatives, estimated costs are lowest for Alternative 3. This alternative incorporates less stringent trawling requirements than specified under Alternative 2 and includes only the CCB Restricted Area closure, which affects relatively few vessels and poses limited costs.

- Alternative 4 is likely to pose the greatest costs. It includes three closures, all of which cover large areas. The estimated impact of the closures specified under this alternative ranges from $1.3 million to $2.1 million per year.

- The cost of complying with Alternative 5 is likely to be somewhat less than that of complying with Alternative 4. The difference is attributable to a difference in trawling requirements, which are slightly less stringent under Alternative 5.

- In general, compliance with gear configuration requirements imposes the greatest costs, with estimates ranging as high as $4.4 million per year. The costs attributable to the seasonal closure of restricted areas also contribute significantly to the estimate of total compliance costs under Alternatives 4, 5, 6 (Draft), and 6 (Preferred). Gear marking requirements add approximately $1 million annually to the estimated cost of complying with most of the action alternatives.

- Gear marking costs are significantly lower under Alternative 6 (Preferred) because it does not require gear in Maine waters landward of the ALWTRP exemption line to be marked. In the lower bound scenario, this leads the estimate of total compliance costs for Alternative 6 (Preferred) to be lower than the corresponding figures for the other action alternatives.

In the upper bound scenario, the overall estimate for Alternative 6 (Preferred) is slightly higher than that for Alternative 3, but lower than the estimates for the other action alternatives.

Exhibit 6-27

ESTIMATED ANNUAL COMPLIANCE COSTS BY ALTERNATIVE (2011 dollars)

Regulatory Alternative	Gear Configuration		Closures		Gear Marking	Total	
	Lower	Upper	Lower	Upper		Lower	Upper
Alternative 1 (No Action)	$0	$0	$0	$0	$0	$0	$0
Alternative 2	$1,241,000	$4,392,000	$0	$0	$1,014,000	$2,255,000	$5,407,000
Alternative 3	$1,003,000	$3,349,000	$21,000	$49,000	$1,047,000	$2,070,000	$4,445,000
Alternative 4	$1,213,000	$4,288,000	$1,340,000	$2,113,000	$1,010,000	$3,562,000	$7,411,000
Alternative 5	$996,000	$3,240,000	$1,340,000	$2,113,000	$1,043,000	$3,379,000	$6,396,000
Alternative 6 (Draft)	$1,009,000	$3,323,000	$557,000	$831,000	$1,054,000	$2,620,000	$5,208,000
Alternative 6 (Preferred)	$1,015,000	$3,316,000	$557,000	$831,000	$338,000	$1,910,000	$4,484,000

Note: Values may not sum to the totals shown due to rounding.

Exhibit 6-27 indicates that variation in the estimate of compliance costs across alternatives also depends on the provisions each alternative incorporates for the seasonal closure of restricted areas. These impacts are greatest under Alternatives 4 and 5, which include the seasonal closure of three areas: Jeffreys Ledge, Jordan Basin, and Massachusetts Restricted Area #1. As shown in Exhibit 6-28, the Jeffreys Ledge closure poses the greatest potential impact, with estimated costs ranging from $0.7 million to $1.2 million per year. The costs attributable to the closure of Massachusetts Restricted Area #1 are estimated at $0.6 million to $0.8 million per year, while those attributable to the closure of Jordan Basin are estimated at $43,000 to $103,000 annually. The estimate of costs attributable to the closure of Massachusetts Restricted Area #2, as specified under Alternatives 6 (Draft) and 6 (Preferred), ranges from $0.6 million to $0.8 million; these figures are comparable to the estimates developed for the closure of Massachusetts Restricted Area #1. In contrast, the estimated impact of closing the CCB Restricted Area on a seasonal basis is relatively modest, adding less than $50,000 per year to the estimated cost of complying with Alternative 3.

Exhibit 6-28

ANNUAL COSTS BY CLOSURE
(2011 dollars)

Closure	Annual Cost		Regulatory Alternative
	Lower Bound Scenario	Upper Bound Scenario	
CCB Restricted Area	$21,000	$49,000	3
Jeffreys Ledge	$743,000	$1,172,000	4,5
Jordan Basin	$43,000	$103,000	4,5
Massachusetts Restricted Area #1	$553,000	$839,000	4,5
Massachusetts Restricted Area #2	$557,000	$831,000	6 (Draft), 6 (Preferred)

The analysis includes several assumptions concerning the impact of new requirements on the catch of target species, which could have implications for market prices. The impact of greatest concern is likely to be the effect on the lobster fishery. As explained, the analysis assumes that lobster vessels converting to longer trawls may realize a decrease in landings and gross revenue. In addition, vessels affected by closures may experience a reduction in catch as a result of suspending fishing or relocating to less productive fishing grounds. Despite these potential effects, the aggregate impact on lobster landings is likely to be minor. The greatest impact is likely to occur under Alternative 4, where the analysis estimates a potential reduction in lobster landings of approximately 2.1 million pounds per year. This is equivalent to approximately 1.7 percent of lobster landings in 2011. A landings reduction of this size is well within the range of annual variation in lobster catch and is unlikely to have significant implications for the market price of lobster.

6.6 ESTIMATED COMPLIANCE COSTS BY FISHERY

Of the fisheries subject to the requirements of the ALWTRP, the lobster fishery would bear the largest share of impacts from the regulatory alternatives under consideration. As Exhibit 6-29 shows, the lobster fishery accounts for the greatest number of vessels that would be required to reconfigure their gear to comply with trawling requirements. This is true across all action alternatives. In addition, the analysis indicates that the lobster fishery alone would be affected by the seasonal closure of fishing grounds. In contrast, all vessels fishing gear that is subject to the requirements of the ALWTRP would be affected by the gear marking provisions incorporated under Alternatives 2 through 6 (Draft); this includes gear fished in Maine and New Hampshire waters that otherwise would be exempt from ALWTRP requirements. Alternative 6 (Preferred) is the exception in that it would not require gear fished in Maine's exempt waters to be marked.

Exhibit 6-30 summarizes the estimate of annual compliance costs by fishery and regulatory alternative. Depending on the alternative and scenario (upper versus lower bound) in question, the analysis indicates that the lobster fishery would incur roughly 80 percent to 90 percent of estimated costs under Alternatives 2 through 6 (Preferred). OTP vessels would also

incur a significant share of costs under these alternatives, primarily because of the proposed minimum trawl-length requirements.[29] The impact of the action alternatives on other fisheries is likely to be minor, reflecting the costs associated with meeting new gear marking requirements.

Exhibit 6-29

NUMBER OF VESSELS AFFECTED BY NEW REQUIREMENTS, BY FISHERY

Regulatory Provisions	Regulatory Alternative	Fishery				Total
		Lobster Trap/Pot	Other Trap/Pot	Blue Crab	Gillnet	
Gear Configuration	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	1,679	139	0	0	1,817
	Alternative 3	1,256	136	0	0	1,392
	Alternative 4	1,695	139	0	0	1,834
	Alternative 5	1,263	136	0	0	1,400
	Alternative 6 (Draft)	1,228	136	0	0	1,364
	Alternative 6 (Preferred)	1,221	136	0	0	1,357
Closures	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	0	0	0	0	0
	Alternative 3	16	0	0	0	16
	Alternative 4	184	0	0	0	184
	Alternative 5	184	0	0	0	184
	Alternative 6 (Draft)	109	0	0	0	109
	Alternative 6 (Preferred)	109	0	0	0	109
Gear Marking	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	5,300	282	48	499	6,129
	Alternative 3	5,300	282	48	499	6,129
	Alternative 4	5,300	282	48	499	6,129
	Alternative 5	5,300	282	48	499	6,129
	Alternative 6 (Draft)	5,300	282	48	499	6,129
	Alternative 6 (Preferred)	3,186	274	48	498	4,006
All	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	5,300	282	48	499	6,129
	Alternative 3	5,300	282	48	499	6,129
	Alternative 4	5,300	282	48	499	6,129
	Alternative 5	5,300	282	48	499	6,129
	Alternative 6 (Draft)	5,300	282	48	499	6,129
	Alternative 6 (Preferred)	3,186	274	48	498	4,006

Note: Values may not sum to the totals shown due to rounding.

[29] Due to insufficient data on vessel activity, the analysis of compliance costs under Alternatives 2 through 6 (Preferred) excludes potential impacts on trap/pot vessels operating in the Northern Inshore shrimp fishery. The Vessel Trip Report data incorporated in the Vertical Line Model identify only two such vessels; this suggests that much of the activity of trap/pot vessels in this fishery is accounted for by vessels that are not subject to Federal reporting requirements, presumably because they do not hold a Federal permit and fish only in state waters. Much of this activity is likely to occur in portions of Maine state waters that are currently exempt from ALWTRP requirements. Under Alternatives 2 through 6 (Draft), vessels operating in these waters would only be subject to ALWTRP gear marking provisions; they would be exempt even from these requirements under Alternative 6 (Preferred). Given these considerations, it is unlikely that exclusion of the Northern Inshore shrimp fishery from the analysis will lead it to substantially understate the costs of complying with Alternatives 2 through 6 (Preferred).

Exhibit 6-30

DISTRIBUTION OF ESTIMATED ANNUAL COMPLIANCE COSTS BY FISHERY
(2011 dollars)

	Fishery						Total	
	Lobster Trap/Pot		Other Trap/Pot					
Regulatory Alternative	**Lower**	**Upper**	**Lower**	**Upper**	**Blue Crab**	**Gillnet**	**Lower**	**Upper**
Alternative 1 (No Action)	$0	$0	$0	$0	$0	$0	$0	$0
Alternative 2	$1,814,000	$4,546,000	$430,000	$849,000	$7,000	$5,000	$2,255,000	$5,407,000
Alternative 3	$1,645,000	$3,600,000	$414,000	$833,000	$7,000	$5,000	$2,070,000	$4,445,000
Alternative 4	$3,121,000	$6,550,000	$430,000	$849,000	$7,000	$5,000	$3,562,000	$7,411,000
Alternative 5	$2,954,000	$5,551,000	$414,000	$833,000	$7,000	$5,000	$3,379,000	$6,396,000
Alternative 6 (Draft)	$2,192,000	$4,361,000	$416,000	$836,000	$7,000	$5,000	$2,620,000	$5,208,000
Alternative 6 (Preferred)	$1,482,000	$3,637,000	$416,000	$835,000	$7,000	$5,000	$1,910,000	$4,484,000

Note: Values may not sum to the totals shown due to rounding.

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Appendix 6-A

GEAR CONVERSION COST METHODOLOGY

This appendix describes the methods used to estimate the equipment cost associated with configuring gear to comply with minimum trawl length proposals included under Regulatory Alternatives 2 through 6 (Preferred). The costs that vessels incur are a function of baseline gear configurations and the specific configuration required under the trawling proposal. NMFS' Vertical Line Model assigns baseline configurations to model vessels (i.e., total number of traps fished, number of traps per trawl, and number of vertical lines per trawl) that vary by fishery and location. These model vessels serve as the starting point for assessing how annual gear costs would change. The model allows the analysis to determine the extent to which vessels in a particular area are fishing sets shorter than the required length, providing an estimate of both the number of vessels that would need to convert gear as well as the current configuration used by those vessels. More detail on the Vertical Line Model can be found in the model's formal documentation, which is available for review on the ALWTRP website (http://www.nero.noaa.gov/Protected/whaletrp/index.html).

Exhibit 6A-1 summarizes the procedure used to estimate the incremental costs associated with converting to longer trawls. For each set of vessels, the method uses unit cost information and useful life information to estimate the annual costs of employing the baseline configuration of gear and the new configuration. The difference between these two annual costs represents the incremental cost of complying with the trawling requirement under consideration. The calculation of annualized costs is based on a seven percent annual discount rate, consistent with current guidance from the Office of Management and Budget (1992).

The estimation of gear conversion costs requires information on certain gear characteristics that are not specified in the Vertical Line Model. Exhibit 6A-2 summarizes these parameters.[30] As shown, the typical configuration of gear employed in trap/pot fisheries varies by region; this variation affects the cost of complying with the proposed trawling requirements. For example, Maine Zone A is characterized by strong tidal currents; to counter the potential effect of these currents, lobster vessels fishing in the area frequently use weights or anchors to keep their gear in place. Similarly, vessels in state waters commonly fish at shallower depths than do vessels in Federal waters, and therefore require less line to connect trawls to surface buoys. While highly generalized, the assumptions summarized in the exhibit allow a more detailed estimate of the potential change in annual gear costs associated with the trawling requirements.

[30] Most of the information in this table is adapted from a recent study developed by the Maine Lobstermen's Association (McCarron and Tetreault, 2012); some supplementary information comes from other sources.

Exhibit 6A-1

METHODOLOGY FOR CALCULATING COSTS OF GEAR RECONFIGURATION

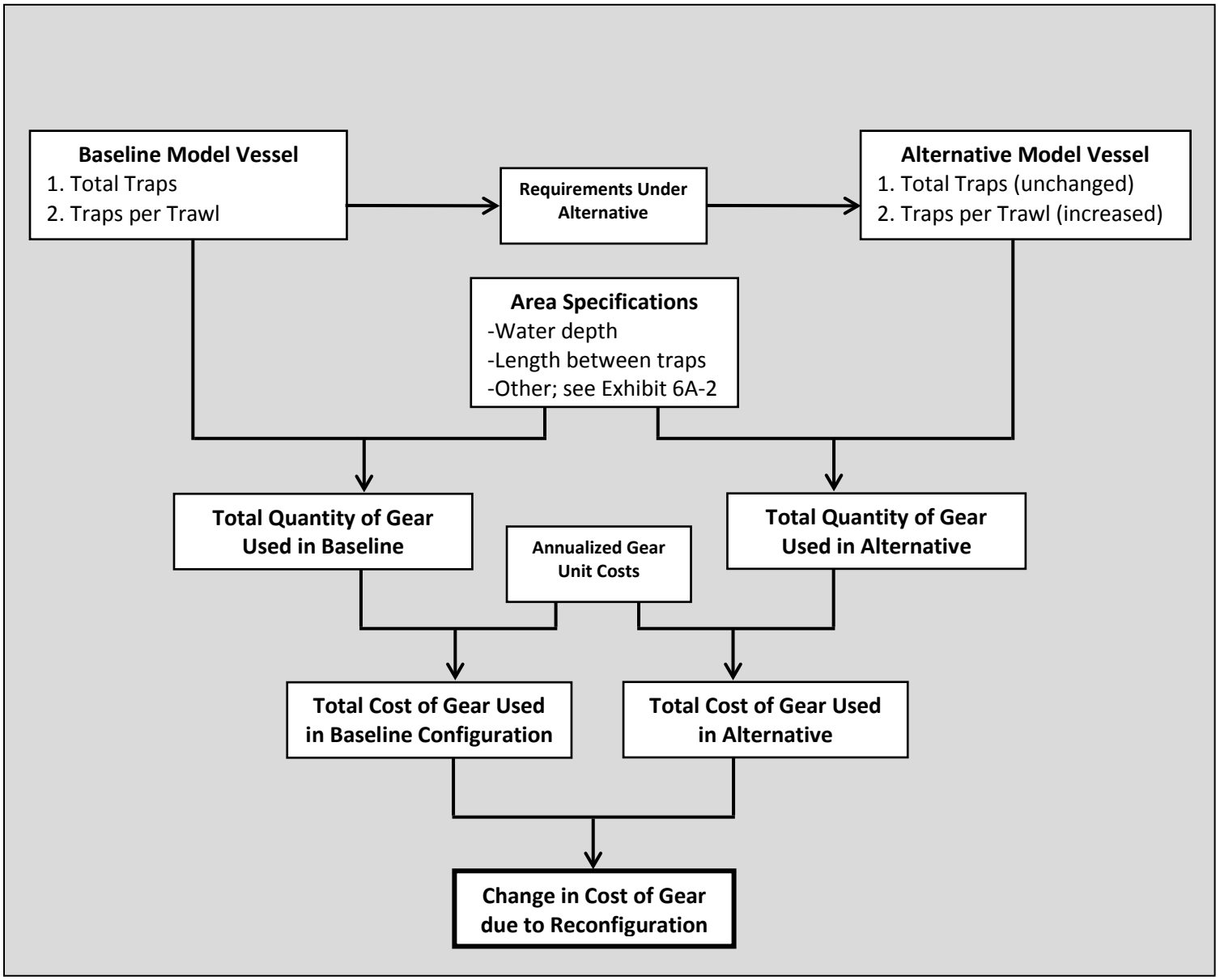


Exhibit 6A-2

GEAR SPECIFICATIONS FOR MAJOR AREAS AFFECTED BY TRAWLING PROPOSALS

State	Zone	Waters	Average Depth (ft.)[1]	% of VL that is Sink Line	VL Slack Factor[2]	VL Diam.	Distance Between Traps (ft.)	Gangion Length (ft.)	Ground -line Diam.	First Buoy	Second Buoy	Length of Line to 2nd Buoy (ft.)	Anchor	Length of Anchor Line (ft.)
ME	A	State	98	33%	1.5	3/8"	60	6	3/8"	5x11	5x11	60	40 lbs.	20
ME	A	Nearshore	452	25%	1.5	3/8"	60	6	3/8"	60" Polyball	5x11	60	40 lbs.	20
ME	B	State	114	33%	1.25	3/8"	90	6	3/8"	5x11	Toggle	60	N/A	N/A
ME	B	Nearshore	457	25%	1.25	3/8"	90	6	3/8"	6x14	5x11	60	N/A	N/A
ME	C	State	104	33%	1.3	3/8"	48	6	3/8"	5x11	N/A	N/A	N/A	N/A
ME	C	Nearshore	433	25%	2	3/8"	90	6	3/8"	7x14	5x11	60	N/A	N/A
ME	D	State	97	33%	1.2	7/16"	45	6	7/16"	5x11	N/A	N/A	N/A	N/A
ME	D	Nearshore	425	25%	1.25	7/16"	75	6	7/16"	9x16	5x11	60	N/A	N/A
ME	E	State	101	33%	1.15	7/16"	45	6	7/16"	5x11	N/A	N/A	N/A	N/A
ME	E	Nearshore	478	25%	1.15	7/16"	90	6	7/16"	9x16	N/A	N/A	N/A	N/A
ME	F	State	59	33%	1.15	7/16"	63	6	7/16"	5x11 (double)[3]	N/A	N/A	N/A	N/A
ME	F	Nearshore	515	25%	1.5	7/16"	90	6	7/16"	5x11	5x11	60	N/A	N/A
ME	G	State	96	33%	1.5	3/8"	90	6	3/8"	7x14	N/A	N/A	N/A	N/A
ME	G	Nearshore	416	25%	1.68	3/8"	72	6	3/8"	9x16	9x16	60	N/A	N/A
NH	N/A	State	70	33%	1.2	3/8"	60	6	3/8"	5x11	N/A	N/A	N/A	N/A
MA	N/A	State	59	33%	1.1	3/8"	96	6	3/8"	5x11 (double)	5x11	60	N/A	N/A
MA	N/A	Nearshore	209	25%	1.1	3/8"	96	6	3/8"	9x16	5x11	60	N/A	N/A
RI[4]	N/A	State	54	33%	1.1	3/8"	103	6	3/8"	5x11	N/A	N/A	N/A	N/A
RI	N/A	Nearshore	120	25%	1.1	3/8"	103	6	3/8"	9x16	5x11	60	N/A	N/A

[1] Average depth data were collected from the NOAA National Environmental Satellite, Data, and Information Service.
[2] Slack factor represents the ratio of vertical line length to average water depth (e.g., 100 ft. depth * 1.5 slack factor = 150 ft. vertical line). Vertical line consists of a portion of sinking rope and a portion of floating rope.
[3] A double 5x11 is two 5x11 buoys that are attached to the same stick. Correspondingly, the price is twice that of a single 5x11 buoy.
[4] Data for Rhode Island vessels were not available. The figures applied are extrapolated from Massachusetts.

Sources: McCarron and Tetreault, 2012.

In addition to the model vessel configurations and area specifications described in Exhibit 6A-2, several additional assumptions affect the analysis of gear reconfiguration costs:

- A gangion is a length of sinking rope attaching a trap to the main groundline. The analysis assumes one gangion per trap when the trawl has two endlines. When a trawl has one endline, the analysis assumes one gangion for all but the last trap.

- Every surface buoy is attached to the line by a weak link of appropriate breaking strength, consistent with current ALWTRP requirements.

- Anchor line, if used, is assumed to be the same type and diameter as the vertical line float rope.

- Rope connecting multiple buoys is the same type and diameter as the vertical line sink rope.

- When anchors are used, there is one anchor per endline.

Lacking more detailed information, gear characteristics (e.g., rope diameter, slack factor, etc.) for other trap pot (OTP) fisheries are assumed to be equivalent to those specified for lobster operations in each area. An important exception applies in the case of the conch component of the OTP fishery. Massachusetts DMF officials suggest that trawling conch pots can be problematic because the pots may spill their contents when hauled.[31] Although low-cost retrofit options for the traps may exist, little information is available on the nature and cost of these options. Therefore, the analysis assumes that conch vessels switching from singles to trawls will need to purchase all new traps compatible with trawling. This assumption may lead to an overstatement of compliance costs for this fishery.

Exhibit 6A-3 summarizes the unit cost information applied in the analysis. When available, price information for individual gear elements was gathered from on-line catalogs; when information was unavailable or unclear on-line, retailers were contacted by phone. Major suppliers of price data included Friendship Trap and New England Marine and Industrial. In cases where multiple suppliers provided differing prices for a gear element, an average is applied. NMFS gear specialists reviewed the pricing information and provided estimates of the expected useful life for each gear component.[32]

[31] Personal communication with Massachusetts DMF, November 7, 2012.

[32] Note that the exhibit includes unit cost information only for components of gear that the analysis suggests might change as a result of the introduction of new regulatory requirements. The analysis does not require cost estimates for other elements of gear, such as lobster traps, that the new regulations would be unlikely to affect.

Exhibit 6A-3

UNIT PRICES AND USEFUL LIFE ESTIMATES FOR GEAR ELEMENTS

Gear Description	Purchase Price	Unit	Average Useful Life (years)	Annualized Purchase Price
Line				
3/8" floating rope	$0.07	per foot	9	$0.009726
3/8" sink rope	$0.11	per foot	6	$0.021176
7/16" floating rope	$0.08	per foot	9	$0.011963
7/16" sink rope	$0.18	per foot	6	$0.035548
Traps				
Conch trap (singles)	$29.30	per trap	10	$3.898748
Conch trap (trawls)	$32.50	per trap	10	$4.324550
Buoys and Floats				
Toggle	$1.99	per toggle	10	$0.264130
Polyball 60"	$44.35	per buoy	10	$5.900683
Bullet Buoy 5x11	$5.40	per buoy	10	$0.718541
Bullet Buoy 5x11 (double)	$10.80	per double	10	$1.437081
Bullet Buoy 6x14	$7.80	per buoy	10	$1.037227
Bullet Buoy 7x14	$12.11	per buoy	10	$1.610729
Bullet Buoy 9x16	$15.64	per buoy	10	$2.081107
Anchors				
40 lb. Danforth anchor	$155.60	per anchor	30	$11.718920
Links and Rings				
600 lb. light-weight plastic weak link	$0.97	per weak link	5	$0.221097
1,500 lb. offshore weak link	$5.65	per link	5	$1.287834
Other				
12" gear marking whip	$0.06	per whip	N/A[1]	$0.055000

[1] The useful life of a marking whip is assumed to be the same as that of the line into which it is incorporated.

Sources: NMFS gear specialists; Friendship Trap and New England Marine and Industrial (on-line catalogs and personal communication).

SOCIAL IMPACTS CHAPTER 7

As a complement to the economic analysis, the social impact assessment (SIA) examines the social and cultural consequences of the potential changes to the Atlantic Large Whale Take Reduction Plan (ALWTRP) that are under consideration. The discussion is organized as follows:

- Section 7.1 discusses the requirements to develop an SIA;
- Section 7.2 describes the general methodology used to assess the social impacts of the regulatory alternatives that NMFS is considering;
- Section 7.3 provides a detailed socioeconomic characterization of the communities that may be affected by modifications to the ALWTRP, and assesses the vulnerability of these communities to adverse impacts;
- Section 7.4 examines the potential socioeconomic impacts of Alternative 6 (Preferred), identifying the groups of vessels that may be most heavily affected under NMFS' preferred alternative;
- Section 7.5 identifies other potential impacts of the management measures under consideration, including adverse effects on fishermen's quality of life and the potential benefits of marine mammal protection for the general public;
- Section 7.6 provides a summary of the impacts identified, including a comparison of the social impacts of the alternatives NMFS is considering.

7.1 BACKGROUND

The National Environmental Policy Act (NEPA) is the primary legal authority necessitating development of an SIA for Federal management actions, including those of the ALWTRP under the authority of the Marine Mammal Protection Act (MMPA). According to Section 40 CFR 1508.14, "[if] economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all these effects on the human environment." In addition, Executive Order 12898 requires that Federal agencies achieve environmental justice by addressing "disproportionately high and adverse human health and environmental effects on minority and low income populations."

7.2 METHODOLOGY

National Oceanic and Atmospheric Administration (NOAA) guidance recommends that the SIA take the form of a social factor analysis organized around a matrix of indicators comparing each regulatory alternative (NOAA, 2007). The guidance suggests that the matrix consist of a set of indicators that address the following social factors:

- The size and demographic characteristics of the fishery-related work force residing in the area;
- The attitudes, beliefs, and values of fishermen, fishery-related workers, and other stakeholders;
- The social structure and organization of the affected community, including effects on the ability of jurisdictions to provide support and services to families and communities;
- Life-style, health, and safety impacts, as well as non-consumptive and recreational uses of marine resources; and
- Historical dependence on and participation in the fishery, as reflected in structural changes in fishing practices, income distribution, and rights.

The guidance further recommends that changes in the chosen social variables be considered relative to baseline conditions for these variables, allowing an assessment of the impact of the policy measure in question.

The approach undertaken here is consistent with this guidance. The analysis involves two basic elements:

- First, the analysis uses county-level socioeconomic data and fishery-dependent data to assess the vulnerability of communities (i.e., counties) to adverse social impacts stemming from promulgation of commercial fishing regulations under the ALWTRP. The analysis is primarily built on data from NMFS' Dealer, Processor, and Vessel Trip Report (VTR) databases, as well as demographic and socioeconomic data from the U.S. Census and the U.S. Department of Labor. Available studies of socioeconomic conditions in Atlantic coast ports provide additional information on community and cultural factors in affected regions.
- Second, based on the results of the economic impact assessment (see Chapter 6), the analysis characterizes the changes in fishing practices and fishing activity that may occur under Alternative 6 (Preferred). This includes a review of the estimated impact of the alternative on the annual operating costs and revenues of vessels in the affected fisheries, as well as consideration of the associated socioeconomic impacts, focusing on

potential changes in landings and employment in the harvest, dealer, and processing sectors.

To supplement this analysis, the SIA also qualitatively considers various other social impacts – both negative and positive – that may result from modification of the ALWTRP. In all cases, the analysis measures these impacts relative to Alternative 1, the no action alternative. Alternative 1 would make no change in current ALWTRP requirements, preserving the regulatory status quo. Thus, it would have no effect on prevailing socioeconomic conditions and no impact on the social factors described above.

7.3 CHARACTERIZATION OF COMMUNITY VULNERABILITY

7.3.1 Factors Affecting Vulnerability

When considering the effect of proposed regulations on fishing communities, one potential approach is to focus the analysis on individual ports or municipalities. Clearly, however, fishing communities can extend beyond the boundaries of a particular port or city. Fish can be landed in one town and processed in a neighboring town. Likewise, a fisherman can land catch in one town, live in a neighboring town, and register his vessel in yet another location. In recognition of these factors, this analysis focuses at the county level.[1] While a county's political boundaries do not limit the network of social interactions and economic resource flows described above, the use of counties as an analytic focus offers several advantages. First, the geographic range of the county is a useful spatial mid-point between individual towns/ports and large regions; this is especially important given that ALWTRP regulations apply to such an extensive geographic area (virtually the entire east coast of the U.S.). In addition, many of the data used to characterize communities (e.g., unemployment rate, population) are readily available at the county level.

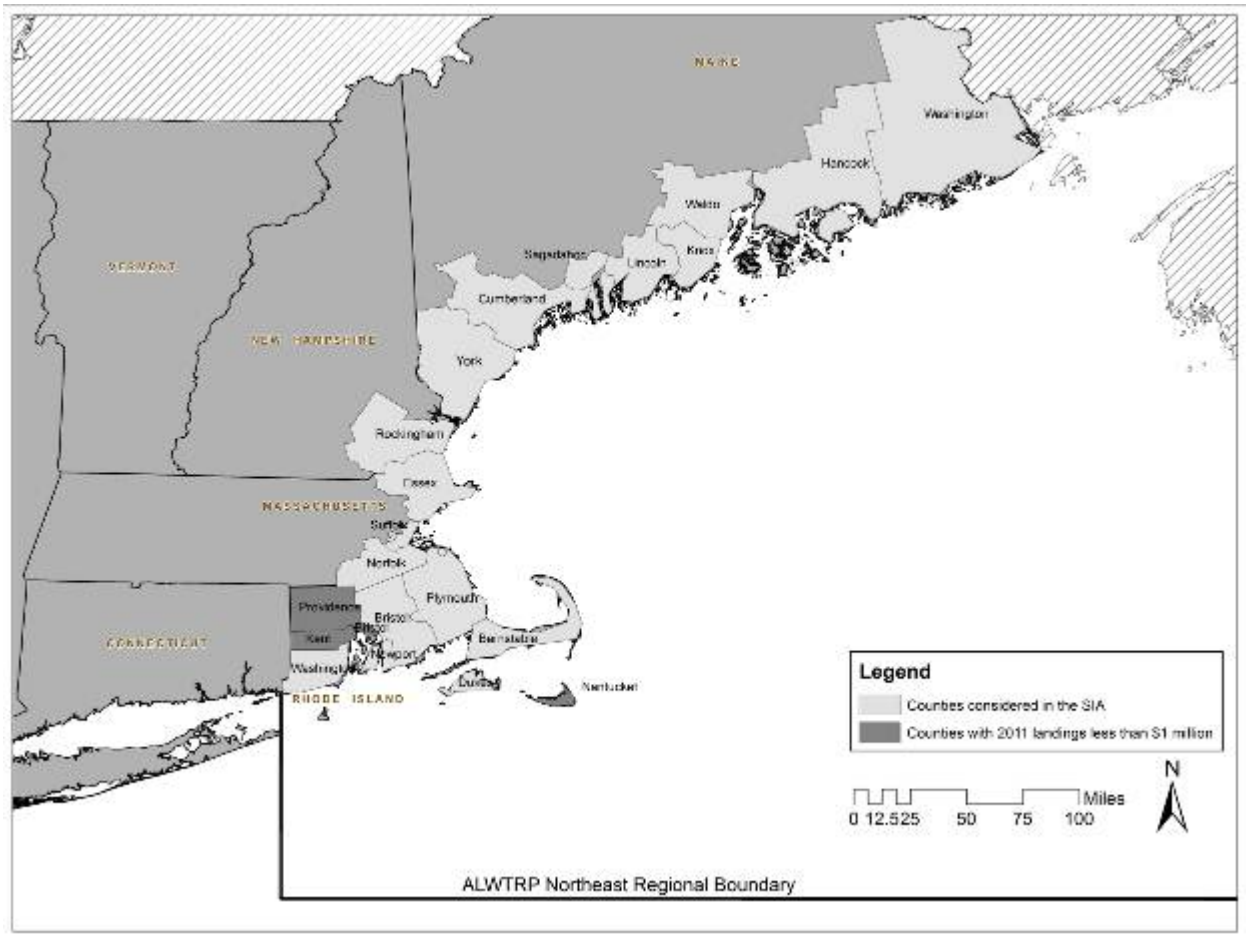
The analysis takes as its principal focus coastal counties in the Northeast that are likely to be substantively affected by the management measures under consideration. As Exhibit 7-1 indicates, this includes all coastal counties in Maine, New Hampshire, Massachusetts, and Rhode Island for which NMFS data show, in 2011, more than $1 million in ex-vessel revenue attributable to landings made with gear regulated under the ALWTRP. The focus on the Northeast is consistent with the results of the economic analysis, which indicate that the cost of complying with new requirements is likely to be greatest for vessels fishing in Northeast waters. Trap/pot vessels operating out of ports in this region are most likely to be affected by the minimum trawl length and area closure requirements that NMFS is considering. In contrast, trap/pot vessels operating out of ports in the Mid-Atlantic region are less likely to fish in the waters subject to these requirements; although such vessels would be subject to new gear marking requirements under Alternatives 2 through 6 (Preferred), the cost of complying with these requirements is unlikely to spur changes (e.g., vessel retirement or significant reductions in income) that would have marked impacts on the social fabric of the fishing community. Likewise, the economic analysis in Chapter 6 suggests that gear restrictions proposed for Southeast trap/pot fisheries under Alternatives 2 through 6 (Preferred) are already, in many

[1] This discussion thus uses the terms "counties" and "communities" interchangeably.

areas, standard practice; hence, the social impacts attributable to these measures are likely to be minor.

Exhibit 7-1

COUNTIES CONSIDERED IN THE SOCIAL IMPACT ANALYSIS



In both fishing and non-fishing communities, the ability to adapt to change varies with social, political and economic considerations. The vulnerability of fishing communities, however, is influenced by additional factors, including the importance of familial relationships, the vulnerability of infrastructure, and the commitment to fishing as a culture and way of life (Clay and Olson 2008). From an analytic perspective, vulnerability includes the characteristics of "exposure, sensitivity, and capacity of response to change or perturbation" (Gallopín 2006, as cited in Colburn and Jepson 2012). Consistent with Gallopin's definition, this SIA considers each county's vulnerability to be a function of the extent to which its fishing industry is affected by the regulations (i.e., exposure), the significance of the fishing industry within the county (i.e., sensitivity), and baseline factors that may affect communities' ability to absorb the economic costs imposed by the regulations (i.e., capacity to respond to change). The discussion that follows briefly describes the parameters used to evaluate each aspect of vulnerability. Appendix 7-A describes all of the parameters considered in the socioeconomic analysis, as well as the source of the data or methods upon which the analysis draws.

7.3.1.1 Exposure

The analysis first considers the extent to which the local fishing industry is exposed to ALWTRP regulations. Exposure is defined in two ways:

- **Value/proportion of harvest associated with affected gear –** The counties most likely to experience adverse social impacts are those in which gear regulated under the ALWTRP is an important source of commercial fishing revenue, either on an absolute or a relative basis.

- **Number of entities affected –** Similarly, the most vulnerable counties are likely to be those that are home to the greatest number of vessels that fish with gear regulated under the ALWTRP.

7.3.1.2 Sensitivity

Those communities that are more heavily dependent (both economically and socially) on the fishing industry are more likely to experience adverse social impacts due to fishing regulations. This analysis relies upon a measure of fishing dependence designed to take additional factors into account. This measure, the Occupational Alternative Ratio Summary (OARS), emphasizes the importance of fishing as an occupation to participants in the labor force as a whole, and the dependence of the local economy on the fishing industry. In general, a higher score indicates a greater dependence on fishing as an occupation, and a lower likelihood that displaced fishermen can easily enter into alternate occupations.[2]

7.3.1.3 Capacity to Respond to Change

A number of economic and demographic factors will influence a community's ability to absorb economic stress, tempering or exacerbating vulnerability to social impacts stemming from ALWTRP regulations:

- **Unemployment Rate, Poverty Rate, Median Income –** Fundamental economic indicators such as the unemployment rate, poverty rate, and median income can indicate the local economy's resilience to regulatory impacts. Communities that are already economically depressed may find it more difficult to absorb the economic effects of regulatory changes and may be subject to greater social impacts.

[2] Measures of fishing dependence and gentrification (see below) are based on Hall-Arber et al. (2001). At the time the analysis was developed, these data represented the most recent published attempt to address these issues systematically, allowing for a direct comparison between counties. Colburn and Jepsen (2012) have developed additional indices allowing for evaluation of fishing dependence and gentrification; however, they have yet to be broadly applied. For a qualitative discussion of these issues, see the Community Profiles for Northeast U.S. Marine Fisheries developed by the NMFS Northeast Fisheries Science Center (2010). These profiles are available online at: http://www.nefsc.noaa.gov/read/ socialsci/communityProfiles.html.

- **Gentrification** – Gentrification can be a key source of coastal community vulnerability (Jacob et al. 2010 and Clay and Olson 2008, as cited in Colburn and Jepson 2012). According to Hall-Arber et al. (2001), as former working waterfronts succumb to the pressures of gentrification, community character and culture are lost, diversity diminishes, and the fishing community is less able to adapt to changes in the environment. Additional fishing regulations can make it even more difficult for individuals to maintain a "fishing way of life." Communities already experiencing gentrification will likely be more susceptible to social impacts as ALWTRP regulations are implemented. Hall-Arber et al. (2001) integrate various measures of gentrification into a score that can be used to characterize community vulnerability.

7.3.2 Assessment of Community Vulnerability

Exhibits 7-2 through 7-4 present socioeconomic data for each county identified as potentially vulnerable to social impacts due to ALWTRP regulations. By evaluating the vulnerability indicators described above, the analysis characterizes the extent to which the counties are susceptible to regulatory-driven social impacts.

Counties in mid-coast and Downeast Maine, where the lobster fishery is the major driver of the commercial fishing economy, tend to be the most vulnerable to adverse social impacts from ALWTRP regulations. Hundreds of lobster vessels are based in these counties, and their landings are extensive (see Exhibit 7-3). Hancock and Knox counties report the greatest value of landings with ALWTRP gear ($108.7 million and $94.6 million, respectively), as well as the greatest number of vessels fishing with such gear (approximately 949 and 953, respectively). The exposure of these counties to adverse impacts is heightened by the fact that landings made with ALWTRP gear account for a high percentage (91 percent in both cases) of overall ex-vessel revenues. Washington County (ME) is also highly exposed, with potentially affected landings of $51.8 million. Each of these counties is highly dependent on fishing, as measured by Hall-Arber et al.'s OARS score. Moreover, the high poverty and unemployment rates in these counties suggest that they have limited capacity to absorb additional economic stress. As a result, they are particularly vulnerable to the impacts of ALWTRP regulations.

More than 50 percent of ex-vessel revenue in Maine's other coastal counties is attributable to landings made with ALWTRP gear. In some instances, however, such as Waldo County, the overall value of these landings is relatively low. In others, such as Lincoln, Sagadahoc, Cumberland, and York, the value of potentially affected landings is substantial, but the economy as a whole is more diversified. As a result, these counties are somewhat less sensitive to adverse impacts that may stem from changes in ALWTRP regulations. The same is true of New Hampshire's Rockingham County. There, 85 percent of ex-vessel revenue is derived from landings made with ALWTRP gear, which suggests that the county's harvesting sector is highly exposed. The sensitivity of the county's economy as a whole, however, is tempered by its low fishing dependence score. In addition, Rockingham County's unemployment rate is the lowest reported among the counties analyzed; this suggests that its

economy has a relatively strong capacity to respond to change and that the region is less vulnerable to adverse impacts than areas where the unemployment rate is higher.

In Massachusetts and Rhode Island, the situation is more varied. In general, the value of landings made with ALWTRP gear in the counties of these states is lower than that reported for counties in Maine and New Hampshire, both on an absolute and a relative basis. In addition, the economies of coastal counties in Massachusetts and Rhode Island tend to be more diversified and less dependent on the commercial fishing sector. Nonetheless, ALWTRP gear accounts for ex-vessel revenues of more than $15 million per year in Essex (MA), Barnstable (MA), and Bristol (MA) counties, suggesting that exposure to adverse impacts in these counties may be substantial. Dependence on commercial fishing is considered medium in Essex and Bristol counties but is rated high in Barnstable County. With an unemployment rate that exceeds 10 percent, Barnstable County may be particularly vulnerable to adverse impacts stemming from the introduction of new ALWTRP regulations.

Businesses that deal in or process fish or shellfish landed by fisheries subject to the ALWTRP are scattered throughout the Northeast region (see Exhibit 7-4). To the extent that changes in ALWTRP regulations reduce overall harvest, these businesses may be affected. A reduced flow of product to dealers and processors could result in layoffs of employees and, in extreme cases, closure of some businesses altogether. As discussed below, however, the analysis suggests that the regulations under consideration would be unlikely to have a major impact on landings. Thus, any impact on the dealer or processing sectors in the region is likely to be minimal.

7.3.3 Caveats

The evaluation of at-risk communities focuses on areas where the absolute impact of potential regulations is likely to be the greatest. While impacts elsewhere may be smaller on an absolute basis, they could be substantial in relative terms; the importance of such impacts to the affected communities should not be overlooked.

Exhibit 7-2

SOCIOECONOMIC PROFILE OF SUBSTANTIVELY AFFECTED COUNTIES – DEMOGRAPHIC PARAMETERS

County	State	Key Ports	Population (2010)	Median Household Income 2007-2011	Persons below Poverty Level 2007-2011	Un-employment Rate (10/2011 - 11/2012)	Fishing Dependency	Gentrification Level	Infrastructure
Washington	ME	Beals Island/Jonesport, Cutler, Eastport, Lubec	32,856	$35,272	20.4%	9.0%	High	Low	Medium-Low
Hancock	ME	Stonington/Deer Isle, Bucksport	54,418	$47,421	12.4%	6.4%	High	Low	Medium-Low
Waldo	ME	Belfast, Searsport, Northport	38,786	$41,728	14.5%	7.1%	High	Medium-Low	Low
Knox	ME	Rockland, Vinalhaven, Port Clyde	39,736	$46,845	11.4%	5.8%	High	High-Low	Medium
Lincoln	ME	South Bristol, Boothbay Harbor	34,457	$48,862	9.8%	5.9%	Medium	NA	NA
Sagadahoc	ME	Georgetown, Phippsburg	35,293	$56,865	9.4%	5.9%	Medium	NA	NA
Cumberland	ME	Portland, Harpswell	281,674	$57,267	10.7%	5.5%	Medium	High	High
York	ME	Kennebunkport/Cape Porpoise, York	197,131	$56,552	8.7%	6.1%	Medium	High-Medium	Medium-Low
Rockingham	NH	Hampton/Seabrook, Portsmouth, Isle of Shoals	1,316,470	$64,664	8.0%	5.4%	Low	High	High
Essex	MA	Gloucester, Rockport, Marblehead	743,159	$65,785	10.6%	8.0%	Medium	Medium	High
Suffolk	MA	Boston Harbor	722,023	$51,638	20.8%	6.9%	Low	Low	Low
Norfolk	MA	Cohasset	670,850	$83,733	6.3%	5.9%	NA	NA	NA
Plymouth	MA	Plymouth, Scituate, Hingham	494,919	$74,698	7.2%	8.2%	Low	High-Medium	Low
Barnstable	MA	Sandwich, Hyannis, Chatham, Provincetown, Woods Hole	215,888	$60,525	8.4%	10.6%	High	Medium-Low	High-Medium-Low
Dukes	MA	Vineyard Haven	16,535	$69,760	10.2%	5.8%	High	High	Medium
Bristol	MA	New Bedford, Fairhaven, Westport	548,285	$55,813	11.3%	10.7%	Medium	High	High
Newport	RI	Jamestown, Newport, Tiverton, Sakonnet Point	82,888	$69,369	7.7%	12.7%	Medium	High-Low	Medium-Low
Washington	RI	Point Judith/Galilee	126,979	$72,163	7.5%	10.8%	Medium	High	High

Exhibit 7-3

SOCIOECONOMIC PROFILE OF SUBSTANTIVELY AFFECTED COUNTIES – HARVEST PARAMETERS

County	State	Top Species Landed by Value	ALWTRP Harvest Value ($)	ALWTRP Harvest Value as % of Total Harvest Value	Estimated Number of Vessels Fishing with ALWTRP Gear	Total Estimated Employment on ALWTRP Vessels	
						Lower Bound	Upper Bound
Washington	ME	Lobster, softshell clam, sea scallop	$51,831,000	77%	663	898	1,561
Hancock	ME	Lobster, American eel, softshell clam	$108,674,000	91%	949	1,216	2,165
Waldo	ME	Lobster, American eel, sea scallop	$1,457,000	80%	47	55	102
Knox	ME	Lobster, softshell clam, Atlantic herring	$94,643,000	91%	953	1,164	2,118
Lincoln	ME	Lobster, oysters, softshell clam	$21,072,000	72%	351	469	820
Sagadahoc	ME	Lobster, worms, quahog	$6,193,000	56%	110	135	245
Cumberland	ME	Lobster, pollock, cod	$45,160,000	69%	555	737	1,297
York	ME	Lobster, bluefin tuna, cod	$12,251,000	85%	199	300	502
Rockingham	NH	Lobster, cod, pollock	$20,407,000	85%	235	347	577
Essex	MA	Lobster, cod, pollock	$23,299,000	32%	467	671	1,184
Suffolk	MA	Cod, lobster, pollock	$2,334,000	13%	107	185	300
Norfolk	MA	Lobster, softshell clam, bluefin tuna	$1,602,000	90%	49	63	112
Plymouth	MA	Lobster, oysters, cod	$9,426,000	58%	270	358	643
Barnstable	MA	Lobster, sea scallops, bluefin tuna	$18,486,000	34%	211	304	537
Dukes	MA	Oysters, lobster, channeled whelk	$2,932,000	67%	59	82	142
Bristol	MA	Sea scallop, cod, lobster	$15,246,000	4%	102	160	271
Newport	RI	Lobster, sea scallop, monkfish	$8,684,000	61%	165	233	426
Washington	RI	Loligo squid, lobster, illex squid	$7,760,000	15%	182	271	472

Exhibit 7-4

SOCIOECONOMIC PROFILE OF SUBSTANTIVELY AFFECTED COUNTIES – DEALER AND PROCESSOR PARAMETERS

County	State	Number of Dealers Handling ALWTRP Species	Dealers Handling ALWTRP Species as % of All Dealers	Estimated Employment at Dealers Handling ALWTRP Species	Number of Facilities Processing ALWTRP Species	Facilities Processing ALWTRP Species as % of All Processors	Estimated Employment at Facilities Processing ALWTRP Species	Value of ALWTRP Species Processed	Value of ALWTRP Species as % of All Species Processed
Washington	ME	28	72%	106	1	100%	21	$653,000	25%
Hancock	ME	34	62%	206	2	50%	47	$1,451,000	39%
Waldo	ME	3	75%	63	1	100%	97	$794,000	4%
Knox	ME	40	53%	154	1	50%	4	$20,000	0%
Lincoln	ME	21	75%	100	3	75%	58	$431,000	51%
Sagadahoc	ME	4	44%	15	1	100%	1	$26,000	98%
Cumberland	ME	37	40%	490	8	100%	244	$37,656,000	87%
York	ME	19	63%	168	2	100%	36	$2,098,000	85%
Rockingham	NH	18	47%	195	2	100%	201	$16,839,000	18%
Essex	MA	40	47%	386	9	64%	800	$80,697,000	43%
Suffolk	MA	10	45%	115	14	82%	701	$63,713,000	44%
Norfolk	MA	5	63%	30	0	NA	0	NA	NA
Plymouth	MA	32	64%	315	0	NA	0	NA	NA
Barnstable	MA	36	55%	238	4	100%	71	$1,455,000	68%
Dukes	MA	9	56%	NA	0	NA	0	NA	NA
Bristol	MA	33	28%	690	9	82%	508	$47,730,000	18%
Newport	RI	22	59%	124	0	NA	0	NA	NA
Washington	RI	25	40%	124	4	80%	93	$2,420,000	13%

7.4 SOCIOECONOMIC IMPACTS OF ALTERNATIVES

The preceding discussion identified and characterized communities most vulnerable to potential changes in ALWTRP regulations. The discussion that follows looks more closely at specific segments of the harvest sector and potential impacts on vessel operators. The discussion focuses on whether the costs of regulatory compliance will cause changes in fishing effort (e.g., vessel retirement) and landings that may lead to broader socioeconomic effects, such as impacts to the dealer and processing sectors or changes in regional employment.

7.4.1 Comparison of Vessel Compliance Costs to Ex-Vessel Revenues

To examine the potential for socioeconomic impacts due to new ALWTRP requirements, the analysis considers the economic burden placed on different groups of vessels, as identified in Chapter 6. Comparing estimates of average vessel compliance costs to estimates of the revenues typically earned by vessels in the affected sectors helps to indicate the extent to which the regulations will impose a hardship on vessel operators.

7.4.1.1 Vessel Distribution by Geographic Area

The comparison of average compliance costs to vessel revenues draws on the model vessels employed in the economic impact analysis. Cost burdens for lobster vessels are characterized for 32 unique fishing areas; burdens for OTP vessels are characterized for five areas. Gillnet vessels face relatively minor costs associated with gear marking requirements, which are unlikely to affect fishing decisions. Thus, they are not included in the cost burden analysis.

7.4.1.2 Number of Affected Vessels

The purpose of the SIA is, in part, to identify groups of vessels that may face disproportionately high compliance costs. For this reason, the analysis focuses only on OTP vessels that are active in areas that would be subject to minimum trawl-length standards; i.e., it excludes vessels that fish solely in state waters that would be exempt from these requirements. The estimates of affected vessels and of economic burden that are presented below are consistent with this focus; for state waters, they pertain only to areas that would be subject to minimum trawl-length requirements.

7.4.1.3 Vessel Revenue

The analysis compares estimates of average annual compliance costs for each group of model vessels in a particular fishery and location (e.g., lobster vessels fishing in the non-exempt state waters of Maine Zone D) to a corresponding estimate of average annual revenue for the vessels in this area. Gross revenue for each vessel group is estimated as a function of average annual catch per trap, the average number of traps fished over the course of a year, and average annual ex-vessel prices.

For the lobster fishery, the analysis develops annual catch per trap estimates based on a variety of data sources (see Chapter 6, Exhibit 6-4). The Vertical Line Model provides an estimate of the average number of traps fished by each model vessel. The resulting estimate of annual catch (pounds per year) is converted to an annual revenue figure using area-specific ex-vessel price data (see Exhibit 6-4).

The analysis uses a similar methodology to calculate annual gross revenue for the model vessels that represent the OTP fishery:

- **Massachusetts OTP Vessels –** The OTP fisheries in Massachusetts are relatively small, and catch data for many species and areas are confidential. Therefore, the analysis employs a weighted average catch per trap figure derived from available data on the catch of three key species (conch, scup, and black sea bass), as reflected in Massachusetts DMF Catch Report data (2011). This process yields a single catch per trap figure for the model vessel representing each geographic area. The same weighting scheme is then used to derive a single price per pound figure for each area. This information, combined with an estimate from the Vertical Line Model of the average number of traps fished by OTP vessels in each area, provides an estimate of annual revenue per vessel.

- **Other Northeast OTP Vessels –** Information on catch per trap is not available for OTP vessels in other Northeast waters. For these areas, the analysis estimates average annual revenue per vessel based on VTR and Dealer data.

7.4.1.4 Vessel Compliance Costs

The economic analysis (see Chapter 6) provides estimates of incremental compliance costs for each model vessel and regulatory alternative. Compliance costs include the cost of new gear required to comply with the rule's minimum trawl length regulations (e.g., additional groundline), labor costs associated with reconfiguring gear, and associated catch impacts. For vessels affected by seasonal closures, upper bound costs reflect the impact of suspending fishing during the closure period. In the lower bound, the estimate of costs reflects a mix of revenue losses for vessels that are assumed to be unable to relocate and relocation costs (e.g., fuel, time, and potential catch impacts) for vessels that seek out alternative fishing grounds. All costs are expressed on an annualized basis.

7.4.1.5 Comparison of Costs and Revenues

To identify potentially hard-hit sectors of the commercial fishing industry, the analysis compares estimates of average vessel compliance costs to estimates of average gross revenue per vessel. Exhibits 7-5 through 7-7 present the results. There is no clearly-defined threshold at which annualized costs represent a large enough percent of annual revenues that a vessel

operator would cease fishing or would otherwise suffer social and economic hardship. For purposes of analysis, however, the exhibits highlight two impact categories:

- **Heavily-Affected Vessels –** Segments of a fishery for which the estimated upper bound compliance costs exceed 15 percent of annual revenues.

- **At-Risk Vessels –** Segments of a fishery for which estimated compliance costs range between 5 and 15 percent of annual revenues.

These categories are consistent with those employed in previous analyses of the impacts of new ALWTRP regulations.[3]

The results presented below focus on the impacts of Alternative 6 (Preferred); a summary of the impacts of the other alternatives can be found at the end of the chapter. Because vessels that would not be affected by the seasonal closure of Massachusetts Restricted Area #2 under Alternative 6 (Preferred) are likely to face a substantially lower cost burden than those affected by the closure, the discussion separately describes the estimated impact of these provisions.

Impacts of Gear Configuration and Gear Marking Requirements

Under Alternative 6 (Preferred), the cost of meeting new gear configuration and gear marking requirements is estimated to be less than 15 percent of gross revenues for all vessels (see Exhibits 7-5 and 7-6). As a result, the impact of these provisions alone would not lead any group of vessels to be designated as heavily affected, either in the low or high cost scenarios. Several groups, however, are identified as at-risk. Under the lower bound scenario, the at-risk category includes OTP vessels fishing in the state waters of Rhode Island or northern Massachusetts (SRAs 1-9). Under the upper bound scenario, the analysis identifies 10 additional groups of vessels as at-risk:

- OTP vessels fishing in Massachusetts SRAs 10 through 13 or SRA 14, as well as OTP vessels fishing in Federal waters of the Northeast region;

- Massachusetts lobster vessels fishing in SRAs 7, 9, and 14;

[3] See National Marine Fisheries Service, *Final Environmental Impact Statement for Amending the Atlantic Large Whale Take Reduction Plan: Broad-Based Gear Modifications*, August 2007.

Exhibit 7-5

COMPARISON OF VESSEL COMPLIANCE COSTS TO GROSS REVENUES UNDER ALTERNATIVE 6 (PREFERRED): GEAR MARKING AND RECONFIGURATION – LOBSTER VESSELS

Waters	State	Zone/Area	Number of Vessels Affected[1]	Lower Bound Annualized Compliance Costs[2]	Upper Bound Annualized Compliance Costs[2]	Average Annual Gross Revenue	Lower Bound Cost as a Percent of Revenue	Upper Bound Cost as a Percent of Revenue
At-Risk Vessels								
Federal	ME	E	98	$807	$1,885	$23,713	3.4%	8.0%
State	MA	14	27	$449	$883	$14,144	3.2%	6.2%
State	MA	9	42	$1,569	$3,122	$50,386	3.1%	6.2%
State	MA	7	67	$1,242	$2,467	$40,106	3.1%	6.2%
Federal	ME	D	147	$516	$2,300	$39,030	1.3%	5.9%
Federal	ME	F	143	$448	$1,350	$23,373	1.9%	5.8%
State	ME	E	51	$838	$1,553	$28,000	3.0%	5.5%
Other Vessels								
Federal	ME	B	103	$390	$1,544	$31,250	1.2%	4.9%
Federal	ME	C	105	$425	$2,141	$44,102	1.0%	4.9%
Federal	ME	G	155	$95	$1,494	$41,500	0.2%	3.6%
State	ME	D	165	$747	$1,276	$42,584	1.8%	3.0%
State	MA	S. Cape (10-13)	37	$214	$383	$13,410	1.6%	2.9%
State	ME	B	59	$281	$467	$22,489	1.3%	2.1%
Federal	ME	A	184	$(330)	$783	$43,017	-0.8%[3]	1.8%
Federal	Other	LMA OC Other	15	$403	$2,114	$122,471	0.3%	1.7%
State	ME	F	29	$472	$771	$47,202	1.0%	1.6%
State	ME	G	48	$314	$510	$33,086	1.0%	1.5%
State	ME	C	175	$531	$793	$53,513	1.0%	1.5%
Federal	Other	LMA 2 Other	113	$190	$924	$64,740	0.3%	1.4%
State	MA	8	30	$310	$570	$46,542	0.7%	1.2%
State	MA	6	70	$256	$444	$38,588	0.7%	1.2%
Federal	Other	LMA 1 Other	267	$85	$498	$45,131	0.2%	1.1%
State	ME	A	132	$75	$223	$30,100	0.2%	0.7%
State	MA	3	119	$146	$230	$35,128	0.4%	0.7%
State	RI	All	74	$122	$184	$28,477	0.4%	0.6%
State	MA	5	78	$139	$216	$34,008	0.4%	0.6%
State	MA	1	29	$114	$170	$29,193	0.4%	0.6%
State	MA	2	158	$129	$189	$38,622	0.3%	0.5%

Exhibit 7-5

COMPARISON OF VESSEL COMPLIANCE COSTS TO GROSS REVENUES UNDER ALTERNATIVE 6 (PREFERRED): GEAR MARKING AND RECONFIGURATION – LOBSTER VESSELS

Waters	State	Zone/Area	Number of Vessels Affected[1]	Lower Bound Annualized Compliance Costs[2]	Upper Bound Annualized Compliance Costs[2]	Average Annual Gross Revenue	Lower Bound Cost as a Percent of Revenue	Upper Bound Cost as a Percent of Revenue
State	MA	4	141	$124	$190	$52,792	0.2%	0.4%
State	NH	All	134	$81	$81	$32,589	0.2%	0.2%
Federal	Other	LMA 3	66	$79	$80	$381,295	0.0%	0.0%

Notes:

1. Number of affected vessels based on methods discussed in economic impact analysis.
2. This exhibit considers only the costs of compliance attributable to gear marking and reconfiguration requirements. All impacts are measured relative to Alternative 1, the no action alternative.
3. As noted in Chapter 6, the analysis of gear conversion costs results in net cost savings for some groups of vessels. The negative value reported here reflects such savings, which are primarily attributable to a reduction in the number of buoy systems required when trawls are employed. While this is an anomalous result – the introduction of a regulatory mandate is unlikely to lead to a reduction in costs – the value is reported for the sake of both analytic consistency and transparency.
4. Affected groups are listed in descending order, based on costs as a percent of gross revenue in the upper bound scenario.
5. No groups are identified as "heavily affected."

Exhibit 7-6

COMPARISON OF VESSEL COMPLIANCE COSTS TO GROSS REVENUES UNDER ALTERNATIVE 6 (PREFERRED): GEAR MARKING AND RECONFIGURATION – OTP VESSELS

Waters	State	Zone/Area	Number of Vessels Affected[1]	Lower Bound Annualized Compliance Costs[2]	Upper Bound Annualized Compliance Costs[2]	Average Annual Gross Revenue	Lower Bound Cost as a Percent of Gross Revenue	Upper Bound Cost as a Percent of Gross Revenue
At-Risk Vessels								
State	RI	All	57	$286	$491	$4,086	7.0%	12.0%
State	MA	Northern (1-9)	7	$9,995	$19,950	$199,103	5.0%	10.0%
State	MA	S. Cape (10-13)	52	$4,555	$9,075	$121,067	3.8%	7.5%
Federal	Northeast		8	$5,898	$14,704	$199,103	3.0%	7.4%
State	MA	14	38	$1,042	$2,049	$36,197	2.9%	5.7%

Notes:

1. Number of affected vessels based on methods discussed in economic impact analysis.
2. This exhibit considers only the costs of compliance attributable to gear marking and reconfiguration requirements. All impacts are measured relative to Alternative 1, the no action alternative.
3. Affected groups are listed in descending order, based on costs as a percent of gross revenue in the upper bound scenario.
4. No groups are identified as "heavily affected."

- Lobster vessels fishing in the non-exempt state waters of Maine Zone E; and

- Lobster vessels fishing in the Federal waters of Maine Zones D, E, and F.[4]

The estimate of impacts for these vessels ranges no higher than seven percent of gross revenues in the lower bound scenario and no higher than 12 percent in the upper bound scenario. This impact is substantial; however, the economic burden associated with gear marking and gear reconfiguration provisions alone is not sufficient to place these vessels in the heavily affected category, or to suggest that the impact of complying with these provisions would have a severe impact on socioeconomic conditions in coastal communities.

Vessels Affected by Closures

In comparison to Alternative 1, the no action alternative, the analysis estimates that under Alternative 6 (Preferred), 109 lobster vessels would be required to suspend operations or relocate their effort to comply with the seasonal closure of Massachusetts Restricted Area #2. The costs these vessels would incur to comply with the closure would be in addition to the costs attributable to other requirements. The analysis indicates that, in aggregate, these measures would have a substantial impact on the affected vessels (see Exhibit 7-7).

- As a lower bound, the analysis assumes that the vessels affected by the closure would be able to relocate their gear and continue to operate in other areas while the closure remains in effect. Under this scenario, the annual cost of compliance is estimated to range from 4.8 to 12.4 percent of the affected vessels' average annual gross revenue. The results suggest that most of those affected would face a cost burden that would place them in the at-risk category (i.e., annualized compliance costs ranging from 5 to 15 percent of annual revenues).

- As an upper bound, the analysis assumes that the affected vessels would suspend operations and forgo the revenue (net of operating cost savings) on the catch they otherwise would have landed. In this case, the annual cost of compliance is estimated to range from 8.8 to 20.4 percent of the affected vessels' average annual gross revenue. The impact on most of those that would be displaced is estimated at greater than 15 percent – above the threshold specified for "heavily affected" vessels – suggesting the potential for some vessels to cease fishing entirely.

[4] It is important to recognize that the estimate of impacts presented for each group of vessels is limited to the costs and revenues associated with gear being fished in a specific location. In practice, vessels may fish in multiple locations. Thus, the estimated cost of compliance as a percentage of revenue does not necessarily represent the overall burden on a particular vessel; instead, it represents the impact on that vessel for the portion of its effort based in a given area. Similarly, the estimate of revenues employed in the analysis does not necessarily represent a vessel's total revenues; it simply represents the revenues derived from effort in a particular area.

Exhibit 7-7

COMPARISON OF VESSEL COMPLIANCE COSTS TO GROSS REVENUES UNDER ALTERNATIVE 6 (PREFERRED): GEAR MARKING, RECONFIGURATION, AND CLOSURES – LOBSTER VESSELS

Waters	State	Zone/Area	Closure	Number of Vessels Affected[1]	Annualized Gear Reconfiguration and Marking Costs		Annualized Closure Costs		Average Annual Gross Revenue	Lower Bound Total Cost as a Percent of Gross Revenue[2]	Upper Bound Total Cost as a Percent of Gross Revenue[2]
					Lower Bound	Upper Bound	Lower Bound	Upper Bound			
Heavily Affected Vessels											
Federal	MA	LMA 1 Other	MA Restricted Area #2	71	$85	$498	$5,513	$8,695	$45,131	12.4%	20.4%
State	MA	7	MA Restricted Area #2	3	$1,242	$2,467	$3,361	$5,036	$40,106	11.5%	18.7%
State	MA	9	MA Restricted Area #2	1	$1,569	$3,122	$3,361	$5,036	$50,386	9.8%	16.2%
State	MA	5	MA Restricted Area #2	15	$139	$216	$3,361	$5,036	$34,008	10.3%	15.4%
At-Risk Vessels											
State	MA	6	MA Restricted Area #2	14	$256	$444	$3,361	$5,036	$38,588	9.4%	14.2%
State	MA	8	MA Restricted Area #2	5	$310	$570	$3,361	$5,036	$46,542	7.9%	12.0%
Federal	MA	LMA OC Other	MA Restricted Area #2	1	$403	$2,114	$5,513	$8,695	$122,471	4.8%	8.8%

Notes:

1. Number of affected vessels based on the average number of full-time equivalent vessels active in the zone/area over the months of the closure, as estimated by the Vertical Line Model.
2. This exhibit considers the total costs of compliance for vessels affected by area closures; i.e., costs attributable to closures as well as those associated with gear marking and gear reconfiguration. All impacts are measured relative to Alternative 1, the no action alternative.

7.4.2 Landings and Employment Impacts

The regulatory alternatives under consideration may have implications for landings and employment in the harvest, dealer, and processing sectors. Building on the cost/revenue comparison presented above, this section discusses the potential landings reduction and employment impacts associated with Alternative 6 (Preferred). Because the analysis indicates that lobster vessels will experience the greatest cost burden, the discussion is limited to potential changes in lobster landings and associated employment impacts. All impacts are measured relative to Alternative 1, the no action alternative.

7.4.2.1 Landings Impacts

As Chapter 6 discusses in detail, the economic impact analysis assumes that implementation of Alternative 6 (Preferred) would result in an overall reduction in lobster landings. This effect is due to two factors:

- A reduction in catch per trap resulting from the use of longer trawls; and
- Reduced effort or relocation to less productive grounds during the seasonal closure of Massachusetts Restricted Area #2.

In the lower cost scenario, the analysis projects a reduction in lobster landings of approximately 474,000 pounds per year; in the higher cost scenario, the projected reduction in landings is approximately 1,231,000 pounds per year (see Appendix 7-B). In 2011, commercial landings of lobster totaled 126,460,000 pounds. Thus, the projected impact of Alternative 6 (Preferred) on the lobster catch is a 0.4 to 1.0 percent reduction in annual landings compared to Alternative 1, the no action alternative.

Even if the impacts projected under Alternative 6 (Preferred) for the higher cost scenario are realized, a notable effect on the lobster market is unlikely, particularly in the long run. In the near term, a 1.0 percent reduction in lobster landings would be expected to push prices up, which would have an adverse impact on consumers; the impact on prices would likely be greatest from January through April, when closure of Massachusetts Restricted Area #2 would be in effect.[5] On a year-to-year basis, however, lobster landings are likely to fluctuate by considerably more than 1.0 percent; thus, the potential impact of new ALWTRP regulations would be unlikely to lead to a substantial change in overall market conditions.[6] Moreover, the impact of gear reconfiguration requirements on catch would likely diminish over time; following an initial adjustment and learning period, fishermen may ultimately achieve catch rates similar to those they achieve with their current configuration of gear.

[5] It is important to note that any increase in prices would, at least in theory, help to offset the costs that fishermen would incur in complying with new regulations. Whether this would in fact be the case depends on the extent to which an increase in prices at the retail level would translate to an increase in ex-vessel prices, or would instead be reflected in higher profits elsewhere in the supply chain.

[6] For data on annual lobster landings, see Chapter 4, Exhibit 4-3.

7.4.2.2 Employment Impacts

As discussed above, the economic analysis estimates that the impact of Alternative 6 (Preferred) on lobster landings is likely to be relatively modest and well within the range of annual variation the fishery has recently experienced. Thus, the analysis does not anticipate that implementation of the alternative would lead lobster dealers or processors to cease operation or significantly reduce their workforces. Impacts on employment, if any, are likely to be concentrated in the harvest sector.

The potential for adverse impacts on employment in the harvest sector is subject to considerable uncertainty. It is difficult to estimate the point at which the cost of regulation would be so great that vessels would cease operating in the fishery. Clearly, however, the greater the burden the regulations would impose, the greater the likelihood that such impacts would occur. Thus, the analysis focuses on employment on vessels previously identified as heavily affected (i.e., those groups for which the upper bound estimate of annualized compliance costs exceeds 15 percent of annual revenues). As Exhibit 7-8 indicates, this includes the following groups:

- Massachusetts lobster vessels fishing in SRAs 5, 7, or 9 that would be displaced as a result of the closure of Massachusetts Restricted Area #2; and

- Lobster vessels fishing in Federal waters of LMA 1 that would be displaced by the closure of Massachusetts Restricted Area #2.

Assuming, on average, that each vessel in these groups carries a captain and a sternman, total employment on heavily affected vessels is estimated at approximately 179. These individuals face the greatest risk of unemployment as a result of the management measures that would be implemented under Alternative 6 (Preferred).

The nature and duration of any employment effects that would result from implementation of new management measures under the ALWTRP is closely tied to the state of the economy where the affected parties reside. In communities where the fishing industry is experiencing economic hardship, it will be difficult for displaced fishermen to find employment on other vessels. Similarly, in communities where unemployment is high, displaced fishermen may find opportunities to work in alternate occupations to be extremely limited. The available data preclude identification of the home ports of all heavily affected vessels. It is reasonable to assume, however, that many of these vessels are based in ports bordering Massachusetts Restricted Area #2; i.e., ports on Cape Cod or in Plymouth County (MA). Economic conditions in these communities vary. In general, however, the fishing industry in these areas faces numerous economic challenges, and the job market as a whole reflects elevated unemployment rates nationwide; thus, it is unlikely that fishermen displaced by the introduction of new ALWTRP regulations would readily find alternate employment.

Exhibit 7-8

ESTIMATED EMPLOYMENT ON HEAVILY AFFECTED VESSELS: ALTERNATIVE 6 (PREFERRED), UPPER BOUND SCENARIO

Fishery	Waters	State	Zone/Area	Closure	Affected Vessels[1]	Average Crew Size[2]	Total Employment[3]
Lobster	Federal	MA	LMA1 - Other	MA Restricted Area #2	71	2	143
Lobster	State	MA	5	MA Restricted Area #2	15	2	29
Lobster	State	MA	7	MA Restricted Area #2	3	2	6
Lobster	State	MA	9	MA Restricted Area #2	1	2	2

Notes:
1. Number of affected vessels based on methods discussed in economic impact analysis.
2. Estimates of average crew size are derived from 2011 Catch Report data provided by Massachusetts DMR and from the GOMRI (2006) survey.
3. Total employment figures may not equal the product of the affected vessels and crew size figures shown due to rounding.

7.4.3 Impacts on Unique Subgroups

The analysis presented above considers the potential effect of new ALWTRP requirements at a very broad scale. This approach may mask social impacts on some unique subgroups. The Massachusetts seasonal or "student" lobster fishery constitutes one such group.[7] While the number of student license holders, vessels, and landings does not constitute a substantial portion of the Massachusetts lobster fishery, the fishery is socially and culturally important in that it helps young people learn a trade and provides a source of experienced labor for the commercial lobster fishery.

Seasonal license holders must be full-time students. They are limited to 25 traps and are licensed to take and sell lobsters to a licensed dealer from June 15 through September 15. The number of seasonal permits issued varies from year to year and has declined from 60 in 2009 to 37 in 2011. On average, seasonal license holders individually land about 250 pounds of lobster per year. Total annual landings in 2011 were just under 10,000 pounds, less than one-tenth of one percent of all Massachusetts landings.

Seasonal fishermen generally fish from small boats; in some cases, the fishermen haul by hand rather than with a hauler/winch. In 2011, the median vessel size in the seasonal fleet was 20 feet. In 2009, all but eight of the 60 vessels in the seasonal fleet were less than 22 feet in length; the smallest was 12 feet and largest was 36 feet. The seasonal vessels overwhelmingly fish single traps. In 2009, 93 percent of all active vessels fished singles. Of the 47 vessels reporting crew information in 2009, 27 (57 percent) fished with just the operator on board (i.e.,

[7] The discussion of the student lobster fishery is based upon information provided by the Massachusetts Division of Marine Fisheries: personal communication, November 7, 2012.

without additional crew). Most of the remaining vessels (13) fished with a single sternman. All seasonal vessels fish inshore waters; they are dispersed widely across the Massachusetts coast.

The minimum trawl-length requirements that NMFS is considering would apply to all commercial trap/pot vessels operating in Massachusetts waters that are subject to the requirements of the ALWTRP, including seasonal vessels. Given the size and configuration of these vessels, the limited experience of the operators and their tendency to fish alone, seasonal license holders may find it difficult to comply with the minimum trawl-length requirements, and participation in the seasonal fishery may diminish. If student fishermen are forced to seek summer employment in other industries, the effects of a diminished apprentice pool could negatively affect the Massachusetts lobster fishery.

7.4.4 Caveats

The cost and revenue comparison presented above is subject to a variety of uncertainties that should be considered when interpreting the results, all of which are detailed in Chapter 6. Briefly, these uncertainties include:

- The cost of gear reconfiguration, which is based upon available data and assumptions concerning the baseline configurations used in each area, the cost and useful life of specific gear elements, and the amount and value of the time required to implement the necessary conversions;
- Whether reconfiguration will result in a need for additional crew or vessel modification;
- The likely response (e.g., suspension or relocation) of fishermen faced with seasonal closure of their usual grounds, and the impact of those responses;
- The number of traps fished by a given vessel;
- The average catch per trap; and
- Catch impacts associated with gear conversion and area closures.

The assumptions made in defining heavily affected vessels and affected fishermen's likely response to ALWTRP requirements are also subject to significant uncertainty. Key caveats include the following:

- The analysis of impacts is based on annualized compliance cost estimates. Depending upon the timing of key regulatory requirements and other factors, the actual stream of annual costs that fishermen may face will vary; i.e., costs may be low in some years and high in others. To the extent that it is difficult to borrow money to finance purchases in high-cost years, larger numbers of vessel operators may be at risk of ceasing operation than the analysis suggests.

- The analysis is based upon estimates of the average compliance costs faced by all vessels within a vessel group. These estimates likely understate the costs to some vessels and overstate the costs to others.

- The analysis identifies vessels incurring costs greater than 15 percent of gross revenue as heavily affected, and focuses on these vessels as the most likely to exit the fishery. It is difficult to estimate the point at which the cost of regulation would be so great that vessels would retire. Further, this decision will be made on a vessel-by-vessel basis, and may include factors other than those considered in this analysis. To the extent that the threshold of adverse social effects for an individual vessel is lower or higher than is assumed in this analysis, social impacts may be over- or underestimated.

- The upper bound assumption that *all* vessels affected by a closure will suspend fishing for the duration of the closure is extremely conservative. Fishermen may have a number of strategies for remaining active during a closure (e.g., relocation). However, fishermen's ability to pursue these strategies may be constrained by regulations that limit access to alternative fishing grounds; practical considerations (e.g., distance, lack of familiarity with new fishing grounds); and tacit territorial agreements among members of the fishing fleet.

- Similarly, assumptions regarding reduced landings as a result of gear reconfiguration are highly conservative. There is no conclusive evidence that gear modifications required under the ALWTRP will result in catch impacts.

7.5 OTHER POTENTIAL SOCIAL IMPACTS

The discussion above focuses primarily upon socioeconomic impacts on the commercial fishing industry. The changes to the ALWTRP that NMFS is considering may have other social impacts, influencing the quality of life enjoyed by fishermen, their families, and other groups.

7.5.1 Potential Negative Social Impacts

For fishermen and their families, the following social impacts may be associated with modifications to ALWTRP requirements:

- Competition for fishing grounds may increase if changes to the ALWTRP include the seasonal closure of certain fishing grounds. Most notably, fishermen who would otherwise fish in the closed area may relocate their effort to new grounds, increasing competition in those areas. Competition for fishing grounds may also increase to the extent that fishermen relocate from their traditional fishing grounds to exempted waters or waters that

are otherwise subject to more moderate regulation. Tension, resentment, and conflict may result from attempts made by outsiders to exploit areas where they have not historically participated. Fishermen who are ultimately excluded from alternate grounds, and subsequently must sit out the season, may experience stress and anxiety associated with inactivity and lost income.

- Increased congestion in certain areas may also increase the incidence of gear conflicts. As noted above, individuals whose usual grounds are closed seasonally may relocate to nearby open areas. Similarly, some may move inshore to areas where minimum trawling requirements are less stringent or may move to exempted waters to avoid these requirements entirely. To the extent that effort becomes concentrated in these areas, gear conflicts are likely to become more frequent. The stress associated with such conflicts may erode relationships among fishermen and exacerbate tensions over fixed resources.

- Gear conflicts may also arise because of ALWTRP regulations that require fishermen in certain locations to use trawls with a single endline. When a trawl has two or more endlines, competing fishermen can use the location of the endline buoys to infer the position of the trawl on the ocean floor. The use of one buoy line may increase gear conflicts and gear loss, since it prevents other fishermen from visually determining the direction in which a trawl or string is set. The fishing community has generally proven adept at developing standard practices to avoid such conflicts, but their ability to adhere to such practices can be hampered by external variables such as weather.

- Minimum trawl length requirements implemented under the ALWTRP may pose safety issues for fishermen. Some industry representatives have suggested that hauling or setting trawls from a small vessel can be dangerous due to the increased quantity of groundline lying on and deploying from a crowded deck, increasing the risk of a crew member becoming entangled and possibly pulled overboard. Furthermore, sources suggest that hauling gear with sinking groundline may pose a danger when fishermen attempt to free fouled line from a snag on bottom structure – an occurrence that could become more common with the introduction of minimum trawl length requirements. Fishermen who ordinarily fish singles and are unfamiliar with the use of trawls may be particularly at risk.

- In addition to imposing time and cost burdens on some fishermen, the ALWTRP's requirements may increase psychological stress on the regulated community. The rule obligates affected fishermen – some of whom have been fishing for decades – to adjust to new fishing techniques. Established fishermen might experience feelings of anger, anxiety, or frustration as they learn the new techniques that the ALWTRP prescribes.

While these feelings would be difficult or impossible to quantify, they nevertheless represent a negative impact for fishermen and their families.

- As previously discussed, the management measures under consideration may have an adverse impact on fishermen's catch. Apart from direct effects on revenue, catch impacts could lead to negative social impacts. For instance, fishermen may spend additional time fishing to make up for the loss in productivity. To the extent that hours at sea increase, this could reduce the quality of life that fishermen and their families enjoy.

- Anecdotal evidence suggests that space limitations may make it infeasible for some small vessels to comply with minimum trawl-length requirements. The burden placed on small vessels could have important implications for the structure and character of fishing communities, particularly if it leads the operators of these vessels to exit the industry. This may leave the commercial fishing fleet smaller and more vulnerable to competition from corporate interests operating larger vessels. Fishermen who value the independence of their profession and the freedom to operate a small business may be harmed by these trends.

While such impacts are possible, it is difficult to predict their extent or determine the degree to which the regulatory alternatives differ with respect to the potential for such effects.

7.5.2 Potential Positive Social Impacts

It is possible that in some cases, the management measures under consideration would have a beneficial effect on fishermen. The potential for such impacts was noted in a 2012 report on a collaborative pilot project conducted by the Maine Department of Marine Resources, the Gulf of Maine Lobster Foundation, and the lobster industry (Maine DMR, 2012). This project sought to determine the impact of fishing longer trawls in areas in which lobstermen traditionally have fished singles or pairs. The fishermen participating in this effort noted several potential benefits of switching to trawls. In particular:

- Several fishermen noted they were able to haul traps configured in trawls more quickly than the same number of traps configured as singles, potentially resulting in decreased time spent at sea;

- Several individuals noted that their success in grappling for lost gear was greater with trawls than with singles. Thus, those who switch from singles to trawls may spend less time in their efforts to recover lost gear.[8]

[8] These time savings may be offset by an increased incidence of hang downs with longer trawls; however, the anecdotal evidence suggests that trawls did not hang-down with any greater frequency than the usual single/double trap configured gear.

To the extent that the ALWTRP successfully protects and helps restore whale populations, those who view and photograph whales from private recreational vessels or from commercial whale watch vessels may also benefit. A number of studies have noted that enjoyment of the whale watching experience is positively correlated with the number of whales sighted. For instance, a study at the Stellwagen Bank National Marine Sanctuary asked respondents to cite the most attractive features of a whale watch; the top responses included the number of whales seen as well as the number of species seen (Day, 1985 as cited in Rumage, 1990). Hoagland and Meeks (2000) found that in seven of eight ports of entry to Stellwagen Bank, respondents to a survey ranked the number of whales seen as an attractive feature of a whale watch more often than any other feature. Likewise, Loomis and Larson (1994) determined that whale watch riders viewing gray whales were willing to pay more for the experience when populations were increased. Similarly, Shapiro (2006) found that the number of whales seen on a whale watch was positively and significantly correlated with the likelihood that the participant would recommend the tour to a friend (used as a measure of passenger satisfaction).

Whale watching is one of the most important recreational industries in New England. Hoagland and Meeks (2000) estimated the net economic "use" value of whale watching on Stellwagen Bank to be on the order of $440 million.[9] While it is not feasible to quantify the increase in whale sightings or the associated economic welfare benefits associated with the ALWTRP, it is possible to characterize the overall size and popularity of commercial whale watching operations on the east coast.[10] While complete data on the industry are lacking, a study by Hoyt (2001) attempted to compile data for operations worldwide. Roughly half of all commercial whale watching worldwide occurs in the U.S., and much of this activity is centered in New England.[11] As shown in Exhibit 7-9, the Hoyt study identified 36 whale watching businesses in New England, with most operating multiple vessels. Hoyt estimated that over one million individuals take whale watching tours in the region each year, yielding over $30 million in annual revenue. Because these figures only apply to permitted and registered operations, the full scale and economic impact of whale watching activity is likely greater. Overall, given the level of activity in the industry, the economic welfare benefits associated with enhanced whale watching could be substantial.

[9] Present value, based on a five percent annual discount rate.

[10] The Regulatory Impact Review included in this EIS provides a more detailed discussion of economic welfare concepts.

[11] Although whale watching operations exist in the Mid- and South Atlantic states, the degree of activity is smaller and cannot be reliably distinguished from tours to view other species, such as dolphins.

Exhibit 7-9

NEW ENGLAND WHALE WATCHING INDUSTRY

State	Number of Operations	Number of Vessels	Annual Ridership	Annual Revenue (millions $)
Massachusetts	17	30-35	1,000,000	$24.0
New Hampshire	4	6-10	80,000	$1.9
Maine	14	18-24	137,500	$4.4
Rhode Island	1	1	12,500	$0.3
TOTAL	36	55-70	1,230,000	$30.6

Source: Hoyt, 2001.

Finally, it is noteworthy that increased whale populations may benefit the operators of whale watch vessels. Larger whale populations may increase demand for whale watch services, increasing patronage and/or the price that customers are willing to pay. In either case, whale watch operations may become more profitable.

The protection and restoration of populations of endangered whales may also generate non-use benefits.[12] Economic research has demonstrated that society places economic value on (relatively) unique environmental assets, whether or not those assets are ever directly exploited. For example, society places real (and potentially measurable) economic value on simply knowing that large whale populations are flourishing in their natural environment (often referred to as "existence value") and will be preserved for the enjoyment of future generations.[13] Using survey research methods, economists have developed several studies of non-use values associated with protection of whales or other marine mammals. Exhibit 7-10 summarizes these studies. In each, researchers surveyed individuals on their willingness to pay (WTP) for programs that would maintain or increase marine mammal populations.

[12] Portions of this discussion of non-use benefits are based on NMFS, *Steller Sea Lion Protection Measures, Final Supplemental Environmental Impact Statement*, November 2001.

[13] Non-use values such as those measured in these studies are closely related to "spiritual" or "ethical" values emphasized by some whale conservation advocates. These observers argue that whales deserve protection from human interference and that such protection provides an intellectual or spiritual benefit to mankind.

Exhibit 7-10

STUDIES OF NON-USE VALUE ASSOCIATED WITH MARINE MAMMALS

Author	Title	Findings
Giraud et al. (2002)	Economic Benefit of the Protection of the Steller Sea Lion	Estimated willingness to pay (WTP) for an expanded Steller sea lion protection program. The average WTP for the entire nation amounted to about $61 per person.
Hageman (1985)	Valuing Marine Mammal Populations: Benefit Valuations in a Multi-Species Ecosystem	Per-household WTP for gray and blue whales, bottlenose dolphins, California sea otters, and Northern elephant seals estimated to be $23.95, $17.73, $20.75, and $18.29 per year, respectively (1984 dollars).
Loomis and Larson (1994)	Total Economic Values of Increasing Gray Whale Populations: Results From a Contingent Valuation Survey of Visitors and Households	Mean WTP of U.S. households for an increase in gray whale populations estimated to be $16.18 for a 50 percent increase and $18.14 for a 100 percent increase.
Day (1985), cited in Rumage (1990)	The Economic Value of Whalewatching at Stellwagen Bank. The Resources and Uses of Stellwagen Bank	Non-use value of the presence of whales in the Massachusetts Bays system estimated to be $24 million.
Samples et al. (1986)	Information Disclosure and Endangered Species Valuation	Estimated individual WTP for protection of humpback whales to be $39.62 per year.
Samples and Hoyller (1989)	Contingent Valuation of Wildlife Resources in the Presence of Substitutes and Complements	Respondents' average WTP (lump sum payment) to protect humpback whales in Hawaii ranged from $125 to $142 (1986 dollars).
Wallmo and Lew (2012)	Public Willingness to Pay for Recovering and Downlisting Threatened and Endangered Marine Species	Per-household mean WTP annually over 10 years for increase in North Atlantic right whale populations estimated to be $71.62 for recovery and $38.79 for down-listing to threatened status (2010 dollars).

A 2012 study by Wallmo and Lew employed a stated preference method to estimate the value of recovering or down-listing eight ESA-listed marine species, including the North Atlantic right whale. Through a survey of 8,476 households, the authors estimated an average WTP value (per household per year, for a 10-year period) of $71.62 for full recovery of the species and $38.79 for recovery sufficient to down-list the species from "endangered" to "threatened." While the other studies noted do not focus specifically on the North Atlantic populations of right, humpback, fin, or minke whales, they do demonstrate that individuals derive economic value from the protection of marine mammals.

7.6 SUMMARY AND COMPARISON OF ALTERNATIVES

An analysis of the socioeconomic characteristics of the potentially affected communities indicates that communities in mid-coast and Downeast Maine may be particularly vulnerable to adverse social impacts as a result of changes to the ALWTRP. Washington, Hancock, and Knox counties in particular are highly exposed to the effects of regulation due to the importance of the lobster fishery to these communities. The value of ALWTRP-affected landings in these communities is substantial, and is the greatest of all affected communities. Additionally, the total number of affected vessels in these three counties is higher than in any other county in the affected region. These communities are also highly sensitive to the proposed regulations, as evidenced by their significant social, cultural, and economic dependence upon fishing. The rural nature of the economy in these counties, coupled with high unemployment and poverty rates,

suggest that they may have a relatively low capacity to adapt to economic impacts induced by new ALWTRP regulations.

The economies of other coastal counties in Maine, as well as the economies of coastal counties in New Hampshire, Massachusetts, and Rhode Island, tend to be more diversified and less dependent on the commercial fishing sector. As a result, they are somewhat less sensitive to adverse impacts that may stem from changes in ALWTRP regulations. Nonetheless, the unemployment rate in some areas, such as Cape Cod (Barnstable County), is quite high. Thus, these areas are also potentially vulnerable to adverse impacts stemming from the introduction of new ALWTRP regulations.

Exhibit 7-11 summarizes the socioeconomic implications of the regulatory alternatives that NMFS is considering. As previously noted, the analysis measures these impacts relative to Alternative 1, the no action alternative. With respect to the action alternatives, the following findings are noteworthy:

- The cost of complying with the gear marking and gear reconfiguration requirements specified under Alternatives 2 through 6 (Preferred) is unlikely, in and of itself, to be substantial enough to force vessel operators out of business or to have a severe impact on socioeconomic conditions in coastal communities. The most significant effect of these requirements is likely to be their impact on small vessels. The size and configuration of these vessels may make it difficult for their operators to comply with minimum trawl-length requirements. The impact of the requirements on small vessels could have important implications for the structure and character of fishing communities, particularly if it leads the operators of these vessels to exit the industry.

- Vessels affected by seasonal closure requirements would, in some cases, face economic impacts that would be difficult to absorb. Based on the ratio of compliance costs to gross revenue, the number of vessels identified as heavily affected ranges from zero under Alternatives 2 and 3 to 163 under Alternatives 4 and 5. For the latter two alternatives, the vessels in the heavily affected category are lobster vessels that would be displaced by the closure of Jeffreys Ledge, the closure of Jordan Basin, or the closure of Massachusetts Restricted Area #1. In contrast, under Alternative 6 (Preferred), the analysis identifies 90 vessels as heavily affected; this group consists of lobster vessels that would be displaced by the closure of Massachusetts Restricted Area #2.

- The available data preclude identification of the home ports of all vessels that would be displaced by the closure of Jeffreys Ledge, Jordan Basin, Massachusetts Restricted Area #1, or Massachusetts Restricted Area #2. It is reasonable to assume, however, that many of these vessels are based in nearby ports; i.e., ports in southern Maine, New Hampshire, or on Cape Ann in the case of Jeffreys Ledge; ports in mid-coast Maine in the case of Jordan Basin; and ports on Cape Cod or elsewhere in Massachusetts in the

case of Massachusetts Restricted Area #1 or Massachusetts Restricted Area #2. The fishing industry in these areas faces numerous challenges, while the job market as a whole reflects the heightened unemployment rates that have persisted nationwide for several years. In light of these conditions, fishermen displaced by the introduction of new ALWTRP regulations would likely find it difficult to secure employment on other vessels and could be faced with a lengthy period of unemployment while they seek work in other occupations – or, potentially, in other regions.

- The estimated reduction in landings of lobster is greatest under Alternative 4 (2.1 million pounds per year) and smallest under Alternative 3 (997,000 pounds per year). However, landings reductions under all alternatives represent less than two percent of 2011 total landings. Because the reduction is substantially less than the annual fluctuation in total landings in recent years, adverse impacts on the dealer and processing sectors under any of the alternatives are unlikely.

- The other adverse social implications of Alternatives 2 through 6 (Preferred) are similar in nature. They include a potential increase in the competition for territory in areas that remain open to fishing; additional potential for gear conflicts in these areas; heightened safety risks associated with fishing longer trawls; and a potential reduction in the size of the commercial fishing fleet. Because the alternatives all affect roughly the same number of vessels, the expected magnitude of such impacts is likely in most cases to be similar. The potential for increased crowding, competition and gear conflicts, however, is lowest under Alternative 2, and is lower under Alternatives 3, 6 (Draft), and 6 (Preferred) than under Alternatives 4 and 5, which include the most extensive seasonal area closures.

- The public welfare benefits associated with increased whale protection are likely to be similar across all alternatives. The analysis measures the change in whale protection offered by a given alternative as a change in the co-occurrence of whales and vertical lines. By this measure Alternative 5 offers the greatest protection to whales, with a reduction in co-occurrence (upper bound scenario) of 42 percent. Alternative 2 offers the least additional protection, with a decrease in co-occurrence (upper bound scenario) of 36 percent.

It is important to consider the socioeconomic burden of the ALWTRP in the context of the larger set of regulations faced by ALWTRP fisheries and the fishing industry as a whole. To the extent that certain communities and groups of vessels have been adversely affected by existing regulations, changes to the ALWTRP may add to their burden and have a substantial impact. The cumulative effects analysis presented later in this EIS considers these issues.

Exhibit 7-11

SUMMARY OF SOCIOECONOMIC IMPACTS BY ALTERNATIVE

Parameter	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6 (Draft)	Alternative 6 (Preferred)
Number of Heavily Affected Vessels (Upper Bound Scenario)	0	0	0	163	163	90	90
Total Employment on Heavily Affected Vessels (Upper Bound Scenario)	NA	NA	NA	330	330	179	179
Anticipated Reduction in Lobster Landings (Upper Bound Scenario)	0	1,283,000 lbs.	997,000 lbs.	2,112,000 lbs.	1,807,000 lbs.	1,235,000 lbs.	1,231,000 lbs.
Impacts on Dealers	No change	Minor short-term supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible
Impacts on Processors	No change	Minor short-term supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible
Other Potential Negative Social Impacts	No change	Minor	Some potential for increased congestion and gear conflict	Greater potential for increased congestion and gear conflict	Greater potential for increased congestion and gear conflict	Moderate potential for increased congestion and gear conflict	Moderate potential for increased congestion and gear conflict
Positive Social Impacts (Reduction in Baseline Co-occurrence Score, Upper Bound Scenario)	No change (0.0 percent change in baseline co-occurrence score)	Public welfare benefits of increased whale protection (36.1 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (37.7 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (40.8 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (42.0 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (38.2 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (38.2 percent reduction in baseline co-occurrence score)

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Appendix 7-A

DESCRIPTION OF COUNTY SOCIOECONOMIC CHARACTERIZATION DATABASE

Exhibit 7A-1

DATABASE FOR COUNTY SOCIOECONOMIC CHARACTERIZATION

Data Category	Database Parameter	Description/Source
Demographic	Key ports	Hall-Arber et al. (2001) and NMFS (2010).
	Population (2010)	U.S. Census Bureau, State and County QuickFacts, 2010, obtained from http://quickfacts.census.gov/qfd/states/25000.html.
	Median household income (2007-2011)	
	Persons below poverty level (2007-2011)	
	Unemployment rate	U.S. Bureau of Labor Statistics Local Area Unemployment Statistics.
	Fishing dependency	Rating of alternative occupation potential as estimated in Table 2 of Hall-Arber et al., 2001.
	Gentrification level	Rating of the degree of gentrification for key ports, as estimated in Table 8 of Hall-Arber et al., 2001.
	Infrastructure	Rating of infrastructure differentiation, as estimated in Table 5 of Hall-Arber et al., 2001. Infrastructure: The type and extent of fishing-related infrastructure in a community can provide a measure of the community's dependence on the fishing industry. In interpreting this parameter, however, it is important to take the scale of fishing activity and size of the community into account. As such, it does not provide a simple and direct measure by which to compare one community's fishing dependence to that of another. This information is provided solely for context; it is not employed in the analysis.
Harvest Sector	Key species landed	Based on ex-vessel value of commercial species landed by county. Derived from 2011 NMFS Dealer data.
	Value of total harvest ($)	Total ex-vessel value of commercial species landed in the county. Derived from 2011 NMFS Dealer data.
	Value of ALWTRP harvest ($)	Ex-vessel value of commercial species landed in the county by vessels fishing with gear subject to ALWTRP regulations. Derived from 2011 NMFS Dealer data.
	ALWTRP harvest value as percent of total harvest value	Ex-vessel value of landings harvested with ALWTRP-regulated gear as a percent of the value of all landings in the county.

Exhibit 7A-1

DATABASE FOR COUNTY SOCIOECONOMIC CHARACTERIZATION

Data Category	Database Parameter	Description/Source
	Estimated number of vessels fishing with ALWTRP gear	Estimated number of active vessels fishing with ALWTRP-regulated gear; derived from sources used in the Vertical Line Model. In Federal waters, the analysis employs 2011 NMFS Northeast Vessel Trip Report (VTR) and 2011 NMFS Northeast Permit data indicating homeport. In Maine state waters, the analysis uses ME DMR's 2010 Annual Log Survey dataset to develop distributions of homeports associated with vessels fishing in the ME Lobster Zones. In New Hampshire, the analysis assumes all vessels port in Rockingham County. In Massachusetts, the analysis uses MA DMF permit and 2009 Catch Report data, which identify vessel homeport. In RI, the analysis distributes vessels to counties based on reported harvest values in the 2011 NMFS Dealer data. These estimates include vessels fishing in waters currently exempt from the ALWTRP.
	Estimated total employment on ALWTRP vessels	Number of individuals working on ALWTRP vessels is based on a low and high bound estimate of the average crew for representative vessels by fishery and location. Average crew size is derived from crew sizes identified in Federal VTR and Permit databases, 2011 Massachusetts Catch Report Data, and the GMRI (2006) survey. Average crew sizes (low/high) are as follows: State waters lobster vessels (1/2); Federal waters lobster vessels (2/3); State waters gillnet vessels (2/4); Federal waters gillnet vessels (3/5); State waters OTP vessels (1/2); and Federal waters OTP vessels (2/3).
Dealer Sector	Overall number of dealers	Number of seafood dealers purchasing catch landed in the county. Derived from 2011 NMFS dealer data.
	Number of dealers handling ALWTRP species	Number of seafood dealers purchasing catch landed with ALWTRP-regulated gear. Derived from 2011 NMFS dealer data.
	Dealers handling ALWTRP species as a percent of all dealers	Number of seafood dealers purchasing catch landed with ALWTRP-regulated gear as a percent of the total number of seafood dealers in the county.
	Estimated employment at dealers handling ALWTRP species	Employment at dealers handling ALWTRP catch, based on the average number of employees per dealer establishment and the number of dealers in the county. The average employment figure is derived from data in the Census Bureau's County Business Patterns database (based on data for the "fish and seafood wholesale" industry). Inconsistencies between the number of dealers reported in the U.S. Census Data and those reported in NMFS Dealer database indicate that the definition and nature of businesses identified as "dealers" may differ between the two sources. Thus, the total employment values presented should be considered rough estimates; they may over- or underestimate actual employment at these establishments.
Processing Sector	Total number of processing facilities	Number of seafood processing facilities in the county, derived from 2011 NMFS Survey of Fishery Products data.
	Number of facilities processing ALWTRP species	Number of seafood processing facilities that handled species affected by ALWTRP requirements, derived from 2011 NMFS Survey of Fishery Products data.

Exhibit 7A-1

DATABASE FOR COUNTY SOCIOECONOMIC CHARACTERIZATION

Data Category	Database Parameter	Description/Source
	Facilities processing ALWTRP species as a percent of all processing facilities	Number of seafood processing facilities that handled species affected by ALWTRP requirements, as a percent of the total number of seafood processing facilities in the county.
	Estimated employment at facilities processing ALWTRP species	Total number of individuals employed at processing facilities handling ALWTRP species. These figures reflect the average number of individuals employed at processors during the year, based on monthly employment data reported to the 2011 NMFS Survey of Fishery Products.
	Total value of seafood processed	Total estimated value of fish processed at facilities in the county, derived from the 2011 NMFS Survey of fishery products.
	Value of ALWTRP species processed	Total estimated value of ALWTRP species processed at facilities in the county, derived from the 2011 NMFS Survey of Fishery Products.
	Value of ALWTRP species processed as a percent of value of all species processed	Total estimated value of ALWTRP-related fish processed, as a percent of total value of fish processed in the county.
Note: All data 2011, unless otherwise indicated.		

Appendix 7-B

ESTIMATED IMPACT OF ALTERNATIVES ON ANNUAL LOBSTER LANDINGS

Exhibit 7B-1

ESTIMATED REDUCTION IN ANNUAL LOBSTER LANDINGS BY ALTERNATIVE

Alternative	Lower Bound Impact (lb./year)	Upper Bound Impact (lb./year)	Lower Bound Impact as Percent of 2011 Landings	Upper Bound Impact as Percent of 2011 Landings
1	0	0	0.0%	0.0%
2	458,000	1,283,000	0.4%	1.0%
3	409,000	997,000	0.3%	0.8%
4	632,000	2,112,000	0.5%	1.7%
5	583,000	1,807,000	0.5%	1.4%
6 (Draft)	474,000	1,235,000	0.4%	1.0%
6 (Preferred)	474,000	1,231,000	0.4%	1.0%

SUMMARY AND INTEGRATION OF IMPACT ANALYSIS FINDINGS — CHAPTER 8

This chapter summarizes and integrates the findings of the biological, economic, and social impact analyses presented in the three preceding chapters, assessing the relative merits of the regulatory alternatives considered in this Environmental Impact Statement (EIS). In all cases the analysis measures these impacts relative to Alternative 1, the no action alternative. Alternative 1 would make no change in the requirements of the Atlantic Large Whale Take Reduction Plan (ALWTRP), preserving the regulatory status quo. Thus, it would have no economic impact and no effect on social conditions in fishing communities. It also would have no impact on the rate at which North Atlantic right whales, North Atlantic humpback whales, or fin whales are seriously injured or killed as the result of incidental entanglement in commercial fishing gear. As Chapter 2 discusses in detail, the available data indicate that additional action is needed to reduce the risk of entanglement and achieve the degree of protection mandated for these species under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA). Accordingly, NMFS is considering modifications to the ALWTRP designed to meet the requirements of the ESA and MMPA. These modifications include:

- *Minimum trawl-length standards*, which would apply to the lobster, blue crab, and other trap/pot (OTP) fisheries in the ALWTRP's Northeast waters;
- New *gear configuration requirements*, which would apply to trap/pot fisheries in the ALWTRP's Southeast waters;
- *Seasonal closure* of designated areas in the Northeast to trap/pot gear;
- *Changes in the designation of waters that would be exempt from ALWTRP requirements* off the coast of New Hampshire; and
- New *gear marking* requirements, which would apply to regulated fisheries in all waters that are subject to the ALWTRP and, under most of the alternatives, to gear fished in Maine and New Hampshire waters that would be exempt from other ALWTRP requirements.

NMFS has specified several action alternatives – Alternatives 2 through 6 (Preferred) – that include different combinations of these measures. NMFS' assessment of the biological, economic, and social impacts of these alternatives is summarized below.

8.1 BIOLOGICAL IMPACTS

8.1.1 Impacts on Whales

All of the action alternatives include provisions that would revise the gear marking requirements specified under the ALWTRP. Under Alternatives 2, 3, 4, 5, and 6 (Draft), the new requirements would apply to gear set in all non-exempt waters, as well as exempt waters in Maine and New Hampshire. Under Alternative 6 (Preferred), gear set in Maine waters landward of the ALWTRP exemption line would remain exempt from gear marking requirements. The new gear-marking provisions would have no immediate impact on entanglement risks. In the long run, however, they may help the National Marine Fisheries Service (NMFS) target and improve its efforts to protect large whales. It is often difficult to connect the gear in which a whale is entangled with a particular fishery, because entangled whales frequently carry only a portion of the gear they have encountered and disentanglement efforts sometimes recover only some of the remaining gear. The gear marking requirements under consideration would help to generate information on the nature of the gear involved in an entanglement. In addition, these provisions in some cases would allow NMFS to identify the owner of the gear, which would enable the agency to gather additional information on where, when, and how the gear was set. By increasing understanding of the nature of large whale entanglements, gear marking measures would allow NMFS, over time, to improve the effectiveness of the ALWTRP. Under Alternative 1, the no action alternative, no additional improvements to the effectiveness of the ALWTRP would occur.

The other regulatory provisions under consideration are likely to have a more immediate and direct effect on the entanglement issue. For example, Alternatives 2 through 6 (Preferred) incorporate various provisions restricting the number of trap/pot buoy lines that fishermen in the Northeast region can employ. Analysis using the Vertical Line Model indicates that the trawling requirements (in combination with other provisions) would reduce the number of vertical lines in ALWTRP-regulated waters by approximately 30 to 35 percent, depending on the alternative. By reducing the number of vertical lines in the water column, these provisions would help to reduce the frequency of entanglements. Under Alternative 1, the no action alternative, the number of vertical lines in the water column would not change, leaving the whales exposed to the current level of entanglement risk.

Alternatives 2 through 6 (Preferred) would also introduce additional gear restrictions for vessels fishing in and around calving grounds in the Southeast. These restrictions affect weak link breaking strength, vertical line strength, vertical line composition, and trawling (i.e., mandatory use of singles). While current practices largely adhere to the proposed restrictions, some incremental conservation benefit may be realized. In addition, these provisions would create safeguards against changes in fishing practices that might increase entanglement risks. Under Alternative 1, the no action alternative, no additional safeguards would be put in place.

Beyond the provisions described above, Alternatives 3 through 6 (Preferred) would also close designated areas in the Northeast to trap/pot gear during months in which whales are most likely to be present (see Exhibit 8-1). Closure of these areas is likely to lead to further reductions in the risk of entanglement compared to Alternative 1, the no action alternative.

Exhibit 8-1

SUMMARY OF AREA CLOSURE PROVISIONS

Closure	Regulatory Alternative	Closure Period	Size (square miles)
Cape Cod Bay Restricted Area	3	February - April	644
Jordan Basin	4 & 5	November - January	725
Jeffreys Ledge	4 & 5	October – January	607
Massachusetts Restricted Area #1	4 & 5	January - April	2,464
Massachusetts Restricted Area #2	6 (Draft) & 6 (Preferred)	January - April	2,161

Alternatives 3, 5, and 6 (Draft) also include a provision that would expand the areas that are exempt from ALWTRP gear modification requirements to include all New Hampshire state waters. Under Alternative 6 (Preferred), gear in New Hampshire state waters would remain subject to current gear modification requirements (e.g., the requirement to use sinking groundline), but would be exempt from minimum trawl-length regulations. Whales are unlikely to be found in these waters, as suggested both by NMFS' review of the data and its current understanding of whale behavior. NMFS believes that exempting this area from minimum trawl-length regulations would be unlikely to have a significant adverse impact on endangered or protected whales compared to Alternative 1, the no action alternative.

8.1.2 Other Biological Impacts

In addition to impacts on large whale species, changes to ALWTRP regulations may affect other aspects of the marine environment, including other protected species, essential fish habitat, and directed catch and bycatch in affected fisheries. Analysis of these issues suggests no significant differences among Alternatives 2 through 6 (Preferred) with respect to impacts on essential fish habitat, directed catch, or bycatch; in each case, the impacts are generally expected to be minor.

Gear restrictions are likely to benefit other protected species prone to entanglement. Specifically, NMFS believes that the trawling requirements could help reduce entanglement risks for sea turtles, whales, dolphins, porpoises, and seals. Likewise, weak link requirements in the Southeast may benefit blue, sei, and sperm whales. The impact of Alternatives 2 through 6 (Preferred) with respect to these benefits is likely to be similar compared to Alternative 1, the no action alternative. The closure of designated areas in the Northeast to trap/pot gear could provide ancillary benefits to sea turtles, sei whales, harbor porpoises, seals, and some pelagic delphinids that may be present when the closures are in effect. Compared to Alternative 1, the no action alternative, these benefits are likely to be greatest under Alternatives 4 and 5, which propose the closure of three different areas for various periods over several months, and lower under Alternatives 3, 6 (Draft), and 6 (Preferred), which propose the closure of less extensive areas for three or four months (see Exhibit 8-1).

Adding all New Hampshire state waters to the area designated as exempt from ALWTRP requirements, as provided for under Alternatives 3, 5, and 6 (Draft), would relieve vessels fishing in these waters from the need to comply with current ALWTRP requirements, including universal gear modification requirements, weak link requirements, and the requirement to use

sinking groundline. These changes could have an adverse effect on other protected species, such as sea turtles.

8.1.3 Comparison of Biological Impacts across Alternatives

The biological impacts analysis presented in Chapter 5 relies primarily on NMFS' Vertical Line Model to examine how the regulatory alternatives might reduce the possibility of interactions between whales and fishing gear. As discussed in that chapter, the model integrates information on fishing activity, gear configurations, and whale sightings to provide indicators of the potential for entanglements to occur at various locations and at different points in time. The fundamental measure of entanglement potential is co-occurrence. The co-occurrence value estimated in the model is an index figure, integrated across the spatial grid, indicating the degree to which whales and the vertical line employed in gillnet or trap/pot fisheries coincide in the waters subject to the ALWTRP. Biological impacts are characterized with respect to the percentage reduction in the overall co-occurrence indicator each alternative would achieve.

Exhibit 8-2 summarizes the estimated change in co-occurrence under each action alternative relative to the no-action alternative (Alternative 1). Separate results are provided for Northeast waters and for ALWTRP waters coastwide. Alternative 2, which includes trawling requirements but no closures, is estimated to yield a reduction in co-occurrence of approximately 36 percent. Alternatives 3 through 6 (Preferred) add incrementally to this reduction through closure of high-risk areas at various times of year. The estimated impact of these closures is greater when affected vessels are assumed to suspend fishing rather than relocate to alternative fishing grounds. The greatest reduction in co-occurrence is achieved under Alternative 5, which includes modified trawling requirements as well as three closures (Jeffreys Ledge, Massachusetts Restricted Area #1, and Jordan Basin). Under this alternative, the estimated reduction in co-occurrence ranges from approximately 40 to 42 percent. Under Alternative 6 (Preferred), the estimated reduction in co-occurrence is approximately 38 percent in Northeast waters and 37 to 38 percent coastwide.

Exhibit 8-2

ANNUAL CHANGE IN CO-OCCURRENCE

Alternative	Percent Reduction in Co-Occurrence Score	
	Northeast Waters	Coastwide
Alternative 1 (No Action)	0.0%	0.0%
Alternative 2	-36.1%	-35.8%
Alternative 3 (100% Suspend)	-37.7%	-37.4%
Alternative 3 (Relocation)	-37.4%	-37.2%
Alternative 4 (100% Suspend)	-40.8%	-40.5%
Alternative 4 (Relocation)	-39.0%	-38.7%
Alternative 5 (100% Suspend)	-42.0%	-41.7%
Alternative 5 (Relocation)	-40.0%	-39.7%
Alternative 6 – Draft (100% Suspend)	-38.2%	-38.0%
Alternative 6 – Draft (Relocation)	-37.7%	-37.4%
Alternative 6 – Preferred (100% Suspend)	-38.2%	-37.9%
Alternative 6 – Preferred (Relocation)	-37.7%	-37.4%

8.2 ECONOMIC IMPACTS

The economic impact analysis developed for this EIS provides detailed estimates of the compliance costs associated with potential changes to the ALWTRP. The analysis estimates compliance costs for model vessels and extrapolates from these findings to estimate the overall cost to the commercial fishing industry of complying with the regulatory changes under consideration. As noted above, the analysis measures the cost of complying with new requirements relative to Alternative 1, the no action alternative – i.e., a baseline scenario that assumes no change in existing ALWTRP requirements. Thus, all estimates of compliance costs are incremental to those already incurred in complying with the ALWTRP. All costs are presented on an annualized basis and reported in 2011 dollars. The calculation of annualized costs is based on a real annual discount rate of seven percent.

The discussion that follows begins by summarizing the methods used to estimate the cost of complying with each of the regulatory alternatives that NMFS is considering. It then presents the resulting cost estimates.

8.2.1 Compliance Cost Estimation Methods

8.2.1.1 Gear Configuration Requirements

A major component of Alternatives 2 through 6 (Preferred) is a minimum trawl-length requirement – i.e., prohibiting trawls of less than a specified number of traps or pots – for trap/pot fisheries in Northeast waters. The exact nature of this requirement varies by alternative and location. The costs that fishermen are likely to incur in complying with such requirements are primarily composed of *gear conversion* costs and *catch impacts*.

Vessels fishing shorter configurations (e.g., singles, doubles) would need to reconfigure their gear to comply with trawling requirements. These changes may require expenditures on new equipment as well as investments of fishermen's time. Analysis of the economic impact of the trawling requirements entails comparing the baseline configuration of gear assigned to model vessels in NMFS' Vertical Line Model with the minimum trawl length that would be required under each regulatory alternative. The analysis identifies instances in which the reconfiguration of gear would be required, estimates the material and labor necessary to bring all gear into compliance, and calculates the resulting cost. Equipment costs are a function of the quantity of gear to be converted and the unit cost of the materials needed to satisfy the trawling requirement. Labor costs are a function of the time required to implement a specific modification, the quantity of gear to be converted, and the implicit labor rate. All costs are calculated on an incremental basis, taking into account any savings in material or labor costs that might result from efforts to comply with new ALWTRP regulations.

In addition to the direct cost of gear conversion, catch rates may decline for vessels that are required to convert from shorter sets to longer trawls, reducing the revenues of affected operations. To estimate impacts in the lower bound, the analysis assumes that vessels implementing a major increase in trawl length (an increase of a factor of two or more in the number of traps in each set) would experience a five percent reduction in their annual catch. In

the upper bound, the analysis assumes that these vessels would experience a ten percent reduction in catch, while all other vessels would experience a five percent reduction. The resulting impact on each vessel's annual revenues is based on prevailing ex-vessel prices for lobster or other trap/pot species.

The analysis does not attempt to quantify several other impacts potentially associated with changes in ALWTRP gear configuration requirements. These include:

- Costs associated with increased gear loss;
- The potential need for a larger crew to handle longer trawls;
- Vessel modification costs;
- Costs for various gear requirements proposed for trap fisheries in the southeast Atlantic; and
- Savings that may result under Alternatives 3, 5, and 6 (Draft) as a result of exempting gear in New Hampshire state waters from existing gear modification requirements (e.g., the requirement to use sinking groundline).
- Savings that may result under Alternative 6 (Preferred) as a result of establishing quarter-mile buffer zones around Matinicus, Ragged, and Monhegan Islands, within which trap/pot gear would not be subject to minimum trawl-length requirements.

The analysis addresses these impacts qualitatively, either because data to develop reasonable estimates are lacking or because available information suggests the impacts will be relatively small.

8.2.1.2 Seasonal Closure Requirements

The analysis of the costs associated with the seasonal closure of designated areas begins by using the Vertical Line Model to estimate the number and type of vessels ordinarily active in each area during the proposed closure period. The remainder of the analysis is organized around two scenarios. In the upper bound, the analysis assumes that these vessels would remove all affected gear from the water for the duration of the closure. In this scenario, economic losses are estimated as the net loss in vessel revenue (i.e., the loss in gross revenue adjusted to take into account estimated savings in operating costs). In the lower bound, the analysis uses available data to identify alternative fishing grounds and the likely subset of vessels that would relocate their gear to alternative areas. In this scenario, estimates of economic losses are based on estimated changes in fuel use, time on the water, and catch per trap.

8.2.1.3 Gear Marking Requirements

Alternatives 2 through 6 (Preferred) specify revised gear marking requirements for all vessels that are subject to the ALWTRP, including those in the lobster, OTP, blue crab, and gillnet fisheries. The requirements apply to gear set in all non-exempt waters. Under Alternatives 2 through 6 (Draft), the new requirements would also apply to gear set in exempt areas of Maine and New Hampshire state waters. In contrast, under Alternative 6 (Preferred), gear set in Maine waters landward of the ALWTRP exemption line would remain exempt from gear marking requirements. For each alternative, the analysis of gear marking costs is based on the Vertical Line Model's estimates of the number of affected vessels and the number of vertical lines fished by those vessels (taking proposed trawling requirements into account). To model these costs, the analysis assumes that lines would be marked using gear marking whips woven into the line, each of which takes roughly five minutes to install. Annualized time and material costs are estimated for each model vessel, then extrapolated to the broader population of affected vessels.

8.2.2 Economic Impact Results

Exhibit 8-3 summarizes the estimated number of affected vessels and industry compliance costs for each of the regulatory alternatives, breaking the results down by major regulatory component. Several findings are noteworthy:

- In general, compliance with gear configuration requirements imposes the greatest costs, with estimates ranging from $1.0 million to $4.4 million per year. The costs attributable to the seasonal closure of restricted areas also contribute substantially to the estimate of total compliance costs under Alternatives 4, 5, 6 (Draft), and 6 (Preferred), with estimated annual impacts ranging from $560,000 to $2.1 million. Gear marking requirements add approximately $1.0 million annually to the estimated cost of complying with Alternatives 2 through 6 (Draft), and approximately $340,000 annually to the estimated cost of complying with Alternative 6 (Preferred).

- Estimated compliance costs for Alternative 2 range from $2.3 million to $5.4 million per year, comparable to the estimates given for Alternative 6 (Draft) but lower than those for Alternatives 4 and 5 and higher than those for Alternative 3 and Alternative 6 (Preferred). Most of the estimated compliance costs under Alternative 2 are attributable to the alternative's gear conversion requirements, which are comparable to those specified under Alternative 4 but slightly more stringent than those specified under Alternatives 3, 5, 6 (Draft), and 6 (Preferred). This alternative would not require the seasonal closure of any area, and thus would impose no costs related to a closure.

- The estimated cost of complying with Alternative 3 – $2.1 million to $4.4 million per year – is lower than that of complying with Alternatives 2, 4, 5, and 6 (Draft), and comparable to that of complying with Alternative 6 (Preferred). This alternative incorporates less stringent trawling requirements than specified under Alternative 2 and includes only the CCB Restricted Area closure, which would affect relatively few vessels and pose limited costs.

- Alternative 4 is likely to pose the greatest costs – an estimated $3.6 million to $7.4 million per year – stemming both from its relatively stringent gear conversion requirements and provisions for the seasonal closure of three large areas. The estimated impact of the closures specified under this alternative ranges from $1.3 million to $2.1 million per year.

- The estimated cost of complying with Alternative 5 – $3.4 million to $6.4 million per year – is similar to but somewhat less than that of complying with Alternative 4. The difference is attributable to a difference in trawling requirements, which are slightly less stringent under Alternative 5.

- Total estimated compliance costs for Alternative 6 (Draft) are similar to those for Alternative 2, though the range of estimated costs is somewhat narrower. The total estimated impact – $2.6 million to $5.2 million per year – includes approximately $560,000 to $830,000 in costs attributable to the seasonal closure of Massachusetts Restricted Area #2.

- The estimated cost of complying with Alternative 6 (Preferred) is $1.9 million to $4.5 million per year. The costs attributable to gear conversion requirements and the seasonal closure of Massachusetts Restricted Area #2 under this alternative are similar to those estimated for Alternative 6 (Draft); however, gear marking costs are substantially lower under Alternative 6 (Preferred) because it would not require gear in Maine waters landward of the ALWTRP exemption line to be marked. In the lower bound scenario, this leads the estimate of total compliance costs for Alternative 6 (Preferred) to be lower than the corresponding figures for all other action alternatives. In the upper bound scenario, the overall estimate for Alternative 6 (Preferred) is slightly higher than that for Alternative 3, but lower than the estimates for Alternatives 2, 4, 5, and 6 (Draft).

Exhibit 8-3

ESTIMATE OF AFFECTED VESSELS AND ANNUAL COMPLIANCE COSTS BY ALTERNATIVE
(2011 dollars)

	Alternative	Gear Conversion		Closures		Gear Marking	Total	
Affected Vessels	Alternative 1 (No Action)	0		0		0	0	
	Alternative 2	1,817		0		6,129	6,129	
	Alternative 3	1,392		16		6,129	6,129	
	Alternative 4	1,834		184		6,122	6,122	
	Alternative 5	1,400		184		6,122	6,122	
	Alternative 6 (Draft)	1,364		109		6,129	6,129	
	Alternative 6 (Preferred)	1,357		109		4,006	4,006	
Compliance Costs	**Alternative**	**Lower**	**Upper**	**Lower**	**Upper**		**Lower**	**Upper**
	Alternative 1 (No Action)	$0	$0	$0	$0	$0	$0	$0
	Alternative 2	$1,241,000	$4,392,000	$0	$0	$1,014,000	$2,255,000	$5,407,000
	Alternative 3	$1,003,000	$3,349,000	$21,000	$49,000	$1,047,000	$2,070,000	$4,445,000
	Alternative 4	$1,213,000	$4,288,000	$1,340,000	$2,113,000	$1,010,000	$3,562,000	$7,411,000
	Alternative 5	$996,000	$3,240,000	$1,340,000	$2,113,000	$1,043,000	$3,379,000	$6,396,000
	Alternative 6 (Draft)	$1,009,000	$3,323,000	$557,000	$831,000	$1,054,000	$2,620,000	$5,208,000
	Alternative 6 (Preferred)	$1,015,000	$3,316,000	$557,000	$831,000	$338,000	$1,910,000	$4,484,000

Note: Values may not sum to the totals shown due to rounding.

Depending on the alternative and scenario (upper versus lower bound) in question, the analysis indicates that the lobster fishery would incur roughly 80 percent to 90 percent of estimated costs. OTP vessels in the Northeast would also incur a substantial share of costs, primarily because of the proposed minimum trawl-length requirements. The impact of the action alternatives on other fisheries is likely to be minor, reflecting only the costs associated with meeting new gear marking requirements.

Research suggests that current practices are largely consistent with the gear configuration requirements proposed for Southeast trap/pot fisheries. Therefore, the cost of complying with them is unlikely to be significant, and these costs are not analyzed in detail**.**

8.3 SOCIAL IMPACTS OF ALTERNATIVES

The analysis of social impacts considers how compliance with the regulatory alternatives could affect the socioeconomic viability of fishing and fishermen's quality of life. The method and results described here are presented in greater detail in Chapter 7.

8.3.1 Potentially Affected Communities

The social impact analysis first uses county-level data on affected fishing vessels to identify the communities at greatest risk of experiencing adverse social impacts stemming from the ALWTRP modifications under consideration. The analysis uses additional county-level socioeconomic data to characterize key features of the at-risk communities, examining economic, demographic, and social features that may influence the impact of the regulations on the region.

Communities in mid-coast and Downeast Maine are the most vulnerable to adverse social impacts as a result of changes to the ALWTRP. Washington, Hancock, and Knox counties in particular are highly exposed to the effects of regulation due to the importance of the lobster fishery to these communities. The value of ALWTRP-affected landings in these communities is significant, and the greatest of all affected communities. Additionally, the total number of affected vessels in these three counties is greater than in any other county in the affected region. These communities are also highly sensitive to the proposed regulations, as evidenced by their significant social, cultural, and economic dependence upon fishing. The high unemployment and poverty rates in these counties suggest that they may have a relatively low capacity to adapt to economic impacts induced by new ALWTRP regulations.

More than 50 percent of ex-vessel revenues in Maine's other coastal counties is attributable to landings made with ALWTRP gear. In some instances, however, such as Waldo County, the overall value of these landings is relatively low. In others, such as Lincoln, Sagadahoc, Cumberland, and York, the value of potentially affected landings is substantial, but the economy as a whole is more diversified. As a result, these counties are somewhat less sensitive to adverse impacts that may stem from changes in ALWTRP regulations. The same is true of New Hampshire's Rockingham County, where economic diversification and lower unemployment suggest a stronger capacity to respond to change.

In Massachusetts and Rhode Island, the situation is more varied. In general, the value of landings made with ALWTRP gear in the counties of these states is lower than that reported for counties in Maine and New Hampshire, both on an absolute and a relative basis. In addition, the economies of the counties in Massachusetts and Rhode Island tend to be more diversified and less dependent on the commercial fishing sector. Nonetheless, ALWTRP gear accounts for ex-vessel revenues of more than $15 million per year in Essex (MA), Barnstable (MA), and Bristol (MA) counties, suggesting that exposure to adverse impacts in these counties may be substantial. Dependence on commercial fishing is moderate in Essex and Bristol counties, but is high in Barnstable County. With an unemployment rate that exceeds 10 percent, Barnstable County may be particularly vulnerable to adverse impacts stemming from the introduction of new ALWTRP regulations.

8.3.2 Comparison of Vessel Compliance Costs to Ex-Vessel Revenues

To identify potentially hard-hit sectors of the commercial fishing industry, the analysis compares estimates of average vessel compliance costs to estimates of average gross revenue per vessel. There is no clearly-defined threshold at which annualized costs represent a large enough percent of annual revenues that a vessel operator would cease fishing or would otherwise suffer social and economic hardship. For purposes of discussion, however, the analysis highlights two impact categories:

- **Heavily-Affected Vessels –** Segments of a fishery for which the estimated upper bound compliance costs exceed 15 percent of annual revenues.

- **At-Risk Vessels –** Segments of a fishery for which estimated compliance costs range between 5 and 15 percent of annual revenues.

The number of vessels identified as heavily affected ranges from zero under Alternatives 2 and 3 to 163 under Alternatives 4 and 5 (see Exhibit 8-4). For the latter two alternatives, the vessels in the heavily affected category are lobster vessels that would be displaced either by the closure of Jeffreys Ledge or the closure of Massachusetts Restricted Area #1. In contrast, under Alternatives 6 (Draft) and 6 (Preferred), the analysis identifies 90 vessels as heavily affected; this group consists of lobster vessels that would be displaced by the closure of Massachusetts Restricted Area #2.

8.3.3 Other Socioeconomic Impacts

As Exhibit 8-4 indicates, Alternatives 2 through 6 (Preferred) could generate additional socioeconomic impacts beyond the direct effect of compliance costs on vessel operations. For example:

- To the extent that compliance reduces lobster landings, the dealer and processing sectors of the economy could be affected. The estimated reduction in landings of lobster is greatest under Alternative 4 (2.1 million pounds per year) and smallest under Alternative 3 (1.0 million pounds per year). Even in the case of Alternative 4, however, the estimated effect on

landings is less than two percent of total landings in 2011. Because the reduction is substantially less than the annual fluctuation in total landings in recent years, adverse impacts on the dealer and processing sectors under any of the alternatives are unlikely to be substantial.

- Competition for fishing grounds may increase if changes to the ALWTRP include the seasonal closure of certain fishing grounds. Most notably, fishermen who would otherwise fish in the closed area may relocate their effort to new grounds, increasing competition in those areas. Competition for fishing grounds may also increase to the extent that fishermen relocate from their traditional fishing grounds to exempted waters or waters that are subject to more moderate regulation.

- Increased congestion in certain areas may increase the incidence of gear conflicts. Gear conflicts may also arise because of ALWTRP regulations that require fishermen in some cases to use trawls with a single endline, which prevents other fishermen from visually determining the direction in which a trawl or string is set.

- Minimum trawl-length requirements implemented under the ALWTRP may pose safety issues for fishermen. Some industry representatives have suggested that hauling or setting trawls from a small vessel can be dangerous due to the increased quantity of groundline lying on and deploying from a crowded deck, increasing the risk of a crew member becoming entangled and possibly pulled overboard. Furthermore, sources suggest that hauling gear with sinking groundline may pose a danger when fishermen attempt to free fouled line from a snag on bottom structure – an occurrence that could become more common with the introduction of minimum trawl-length requirements.

- Some small vessels may find it infeasible to comply with minimum trawl-length requirements due to limitations on deck space and related issues. To the extent that smaller vessels have difficulty competing, trends toward consolidation and increased corporate ownership of fishing vessels may be reinforced.

Exhibit 8-4

SUMMARY OF SOCIOECONOMIC IMPACTS BY ALTERNATIVE

Parameter	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6 (Draft)	Alternative 6 (Preferred)
Number of Heavily Affected Vessels (Upper Bound Scenario)	0	0	0	163	163	90	90
Total Employment on Heavily Affected Vessels (Upper Bound Scenario)	NA	NA	NA	330	330	179	179
Anticipated Reduction in Lobster Landings (Upper Bound Scenario)	0	1,283,000 lbs.	997,000 lbs.	2,112,000 lbs.	1,807,000 lbs.	1,235,000 lbs.	1,231,000 lbs.
Impacts on Dealers	No change	Minor short-term supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible
Impacts on Processors	No change	Minor short-term supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible
Other Potential Negative Social Impacts	No change	Minor	Some potential for increased congestion and gear conflict	Greater potential for increased congestion and gear conflict	Greater potential for increased congestion and gear conflict	Moderate potential for increased congestion and gear conflict	Moderate potential for increased congestion and gear conflict
Positive Social Impacts (Reduction in Baseline Co-occurrence Score, Upper Bound Scenario)	No change (0.0 percent change in baseline co-occurrence score)	Public welfare benefits of increased whale protection (36.1 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (37.7 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (40.8 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (42.0 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (38.2 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (38.2 percent reduction in baseline co-occurrence score)

Because new gear configuration requirements under Alternatives 2 through 6 (Preferred) would affect roughly the same number of vessels, the impacts related to such requirements under each of these alternatives is likely to be similar. The potential for increased crowding, competition and gear conflicts, however, is greatest under Alternatives 4 and 5, which include the most extensive seasonal area closures.

The public welfare benefits associated with increased whale protection are likely to be similar across all action alternatives. As noted, the analysis measures the change in whale protection offered by a given alternative as a change in the co-occurrence of whales and vertical lines. By this measure, Alternative 5 offers the greatest protection to whales, with a reduction in co-occurrence (upper bound scenario) of 42 percent. Alternative 2 offers the least benefit, with a reduction in co-occurrence (upper bound scenario) of 36 percent. These biological benefits have socioeconomic implications for the general public. Increasing whale populations would have a positive impact on the consumer surplus derived from whale watching (a use benefit) and may increase producer surplus for operators of whale watch vessels. Likewise, whale conservation may enhance intrinsic values that society holds for healthy, flourishing whale populations.

8.4 INTEGRATION OF RESULTS

The inability to quantify and value the benefits of potential changes to the ALWTRP prohibits the use of benefit-cost analysis to identify the regulatory alternative that would be likely to provide the greatest net benefit. Instead, Exhibit 8-5 summarizes the estimated cost of complying with each regulatory alternative, coupled with the estimated impact of each alternative on the Vertical Line Model's co-occurrence indicator. It also presents estimates of the cost-effectiveness of each alternative in reducing co-occurrence, both in the aggregate and for its major components (i.e., gear marking, gear reconfiguration, and seasonal area closures). Because the alternatives vary with respect to the reduction in co-occurrence they achieve, it is not possible to identify a superior option based on cost-effectiveness alone. Nonetheless, the cost-effectiveness figures provide a useful means of comparing the relative impacts of the regulatory provisions that each alternative incorporates. The exhibit reveals several noteworthy findings:

- The minimum trawl-length requirements yield the greatest reduction in co-occurrence for the associated compliance cost. In contrast, closures are less cost-effective, as evidenced by their greater cost per unit reduction in co-occurrence.

- Alternative 3 is cost-effective relative to most of the other alternatives ($56,000 to $119,000 per unit of co-occurrence reduction). This is in part because the costs attributed to the seasonal closure of the Cape Cod Bay Restricted Area are relatively low. In addition, this alternative includes modifications to the gear reconfiguration requirements specified in Alternative 2 that are estimated to have a greater impact on co-occurrence at a lower total cost.

- The cost-effectiveness estimates for the remaining closures – Jeffreys Ledge, Jordan Basin, Massachusetts Restricted Area #1, and Massachusetts Restricted Area #2 – range from $194,000 to $573,000 per unit of co-occurrence reduction.

- Overall, the least cost-effective alternative is Alternative 4. It includes the same gear reconfiguration requirements specified under Alternative 2, plus three closures with relatively high costs per unit of co-occurrence reduction. Alternative 5 appears to be superior to Alternative 4, achieving a greater estimated impact on co-occurrence at a lower total cost.

- Alternative 6 (Preferred) is the most cost-effective of the alternatives ($51,000 to $118,000 per unit of co-occurrence reduction). It eliminates gear marking requirements for vessels in Maine exempt waters, lowering costs without affecting the estimated co-occurrence reductions. Like Alternative 6 (Draft), it includes only one closure (Massachusetts Restricted Area #2), further improving overall cost-effectiveness relative to alternatives that include more extensive closures.

Exhibit 8-6 further illustrates these findings, using cost-effectiveness curves to compare the impacts of Alternative 6 (Preferred) to those of Alternative 4, the least cost-effective of the alternatives analyzed. The exhibit displays co-occurrence reduction on the horizontal axis and compliance costs on the vertical axis for both the upper and lower bound scenarios for each alternative. The segments of each curve show the marginal impacts of the two alternatives' major regulatory provisions. As the exhibit shows, gear-marking costs under Alternative 6 (Preferred) are estimated to be approximately one-third of those under Alternative 4, reflecting the exemption from gear-marking requirements the preferred alternative provides for gear in Maine's exempt waters. This shifts the cost-effectiveness curves for Alternative 6 (Preferred) downward from those for Alternative 4, as reflected in the lower y-intercept. The marginal impacts of the two alternatives' gear reconfiguration provisions are similar, although these impacts are estimated to be slightly more effective and less costly under Alternative 6 (Preferred). In contrast, the provisions for seasonal area closures under Alternative 4 are more extensive than those under Alternative 6 (Preferred), yielding a greater reduction in co-occurrence scores. The benefits associated with these closures, however, come at a relatively high cost, as reflected in the steeper slope of each segment of the cost-effectiveness curves that represents these impacts.

NMFS has considered the benefit and cost information presented above and believes that Alternative 6 (Preferred) offers the best option for achieving compliance with MMPA and ESA requirements. By excluding vessels in Maine exempt waters from gear marking requirements, Alternative 6 (Preferred) reduces compliance costs with no direct or immediate effect on the estimated reduction in co-occurrence. In addition, Alternative 6 (Preferred) provides most of the benefits that would be achieved under more stringent alternatives, sacrificing only the relatively costly additional reduction in co-occurrence that would be achieved by the closure of Jeffreys Ledge, Jordan Basin, and Massachusetts Restricted Area #1. Based on these considerations, NMFS has identified Alternative 6 (Preferred) as its proposed approach to achieving the goals of the ALWTRP.

Exhibit 8-5

COST-EFFECTIVENESS OF ALTERNATIVES

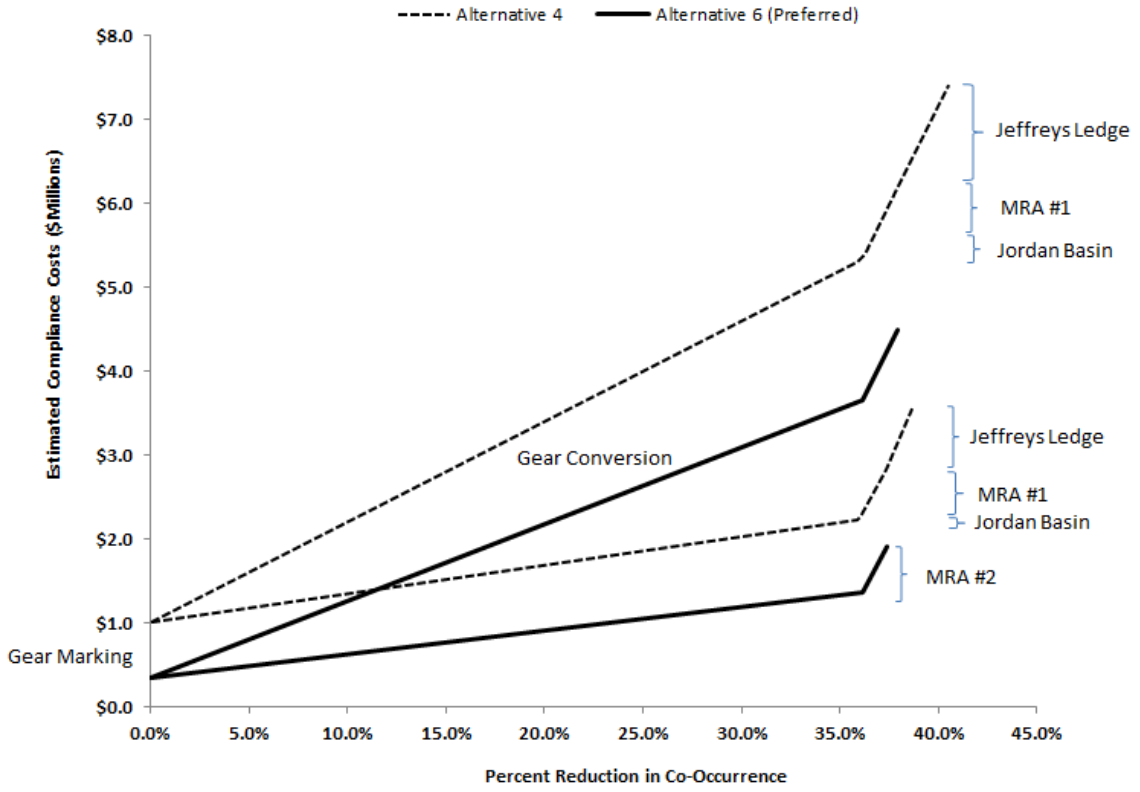
Alternative	Regulatory Component	Lower Bound Scenario			Upper Bound Scenario		
		Cost	Co-Occurrence Benefit	Cost per Unit of Co-Occurrence Reduction	Cost	Co-Occurrence Benefit	Cost per Unit of Co-Occurrence Reduction
1	NA	$0	0.0%	NA	$0	0.0%	NA
2	Gear Marking	$1,014,000	0.0%		$1,014,000	0.0%	
	Gear Reconfiguration	$1,241,000	35.8%	$34,625	$4,392,000	35.8%	$122,540
	Total	$2,255,000	35.8%	$62,916	$5,407,000	35.8%	$150,859
3	Gear Marking	$1,047,000	0.0%		$1,047,000	0.0%	
	Gear Reconfiguration	$1,003,000	37.0%	$27,096	$3,349,000	37.0%	$90,474
	CCB CH	$21,000	0.2%	$137,538	$49,156	0.4%	$124,059
	Total	$2,070,000	37.2%	$55,692	$4,445,000	37.4%	$118,811
4	Gear Marking	$1,010,000	0.0%		$1,010,000	0.0%	
	Gear Reconfiguration	$1,213,000	35.8%	$33,844	$4,288,000	35.8%	$119,638
	Jordan	$43,000	0.2%	$194,464	$103,000	0.5%	$226,983
	MRA #1	$553,000	1.3%	$435,448	$839,000	1.8%	$470,735
	Jeffreys	$743,000	1.4%	$547,456	$1,172,000	2.5%	$475,733
	Total	$3,562,000	38.7%	$92,066	$7,411,000	40.5%	$182,802
5	Gear Marking	$1,043,000	0.0%		$1,043,000	0.0%	
	Gear Reconfiguration	$996,000	37.0%	$26,907	$3,240,000	37.0%	$87,529
	Jordan	$43,000	0.2%	$274,178	$103,000	0.3%	$296,740
	MRA #1	$553,000	1.3%	$435,404	$839,000	1.8%	$470,701
	Jeffreys	$743,000	1.3%	$573,414	$1,172,000	2.5%	$464,491
	Total	$3,379,000	39.7%	$85,030	$6,396,000	41.7%	$153,495
6 (Draft)	Gear Marking	$1,054,000	0.0%		$338,000	0.0%	
	Gear Reconfiguration	$1,009,000	36.2%	$27,879	$3,316,000	36.2%	$91,622
	MRA #2	$557,000	1.2%	$447,644	$831,000	1.8%	$471,979
	Total	$2,620,000	37.4%	$69,985	$5,208,000	38.0%	$137,222
6 (Preferred)	Gear Marking	$338,000	0.0%		$338,000	0.0%	
	Gear Reconfiguration	$1,015,000	36.2%	$28,057	$3,316,000	36.2%	$91,661
	MRA #2	$557,000	1.2%	$447,644	$831,000	1.8%	$471,979
	Total	$1,910,000	37.4%	$51,041	$4,484,000	37.9%	$118,195

Notes:

- By improving understanding of the nature of entanglements, gear marking requirements could in the long-term have a beneficial impact on the cost-effectiveness of regulations specified under the ALWTRP; however, they would have no direct or immediate impact on the co-occurrence indicator.
- Values may not sum to the totals shown due to rounding.

Exhibit 8-6

COST-EFFECTIVENESS CURVES FOR ALTERNATIVES 4 AND 6 (PREFERRED): LOWER AND UPPER BOUND COMPLIANCE SCENARIOS



CUMULATIVE EFFECTS ANALYSIS CHAPTER 9

The cumulative effects analysis (CEA) examines the consequences of the regulatory alternatives within the context of past, present, and future factors that influence resources associated with the ALWTRP. The discussion below is organized according to the following topics:

- the requirements that necessitate a CEA, which are presented in Section 9.1;
- an introduction to the valued ecosystem components (VECs) considered in this analysis, which is located in Section 9.2;
- a description of the geographic and temporal scope of the analysis, which is presented in Section 9.3;
- a discussion of the past, present, and reasonably foreseeable future actions that interact with each VEC, which is presented in Section 9.4;
- a summary of the biological, economic, and social consequences of the regulatory alternatives, which is in Section 9.5; and
- a detailed analysis of the cumulative effects of the regulatory alternatives on each VEC within the context of other past, present, and reasonably foreseeable future actions, which is in Section 9.6.

9. 1 BACKGROUND

NEPA requires all environmental impact statements for proposed Federal actions to include a cumulative effects analysis that examines the impact of the actions in conjunction with other factors that affect the physical, biological, and socioeconomic resource components of the affected environment. Guidelines for evaluating cumulative effects, prepared by the Council on Environmental Quality (CEQ), emphasize the growing evidence that "the most devastating environmental effects may result not from the direct effect of a particular action, but from the combination of individually minor effects of multiple actions over time" (CEQ, 1997). The

purpose of the cumulative effects analysis is to ensure that Federal decisions consider the full range of an action's consequences, incorporating this information into the planning process.

9.2 VALUED ECOSYSTEM COMPONENTS

The following VECs would be affected by changes to the ALWTRP and are addressed in this analysis:

- **Atlantic Large Whales**. This VEC includes the three large whale species that are the focus of the ALWTRP — the North Atlantic right whale, the humpback whale, and the fin whale — as well as the minke whale, which also benefits from the plan. The Affected Environment chapter of this EIS provides a detailed discussion of the life cycle and abundance of these species.

- **Other Protected Species**. Other protected species include other whales, dolphins, porpoises, seals, and turtle species that may interact with gillnet and/or trap/pot fishing gear and are classified as (1) endangered or threatened under the Endangered Species Act, or (2) otherwise protected under the Marine Mammal Protection Act. The Affected Environment chapter of this EIS provides an overview of the life cycle and abundance of these species.

- **Affected Fisheries**. The affected fisheries are all those currently or potentially subject to the requirements of the ALWTRP:

    - The lobster trap/pot fishery, including all vessels holding state or Federal limited access lobster permits.

    - The gillnet fishery, including all vessels with state or Federal limited access or general category permits using gillnet fishing gear. This includes but is not limited to the following gillnet fisheries: multispecies, monkfish, spiny dogfish, shark, and the coastal migratory pelagic fisheries.

    - The other trap/pot fishery, including all vessels with state or Federal limited access or general category permits using trap/pot fishing gear. This includes but is not limited to the following trap/pot fisheries: black sea bass, conch/whelk, hagfish, Jonah crab, red crab, and scup.

    The Affected Environment chapter provides a detailed discussion of these fisheries.

- **Habitat**. The habitat VEC includes all marine habitats deemed essential and/or critical to the well-being and reproduction of commercial marine species and endangered species. For the purpose of this action, Essential Fish Habitat (EFH) includes all water column and benthic habitat of the EEZ. EFH is described in greater detail in the Affected Environment chapter. Critical habitat areas are designated under the Endangered Species Act for endangered or threatened marine species.

- **Human Communities**. This VEC includes all coastal communities whose economies and social structure are substantially dependent on or affected by lobster, other trap/pot, and/or gillnet fishing activities, whale watching or other passive uses.

9.3 GEOGRAPHIC AND TEMPORAL SCOPE

This analysis is limited to the geographical area currently or potentially subject to the requirements of the ALWTRP. This area includes the seawater and sea bottom of the Atlantic Ocean within U.S. jurisdiction from Maine to West Palm Beach, Florida.

The temporal scope of the analysis varies by resource. In all instances, the analysis attempts to take into account both present and reasonably foreseeable future actions (within five years) that could affect valuable physical, biological, or socioeconomic resources. The discussion of past actions and events, however, reflects underlying differences in the availability of historical information, as well as differences in the period of time that must be considered to provide adequate context for an understanding of current circumstances.

- **Atlantic Large Whales**. The assessment of factors that have influenced the status of large whales employs a broad time horizon, reflecting the long history of commercial whaling and its critical role in the depletion of whale stocks. This history dates to as early as 800 A.D. The discussion notes the continuing impacts of whaling on the status of whales today, but also provides information on a variety of other stresses, including interactions with commercial and recreational fisheries, ship strikes, water pollution, noise pollution, climate change, and prey availability. The discussion of these issues focuses primarily on information gathered over the last two decades, and in particular on information characterizing conditions since 1994, when Congress amended the Marine Mammal Protection Act to require the preparation of annual stock assessments for all populations of marine mammals in U.S. waters.

- **Other Protected Species**. The analysis of impacts on other protected species (i.e., whales, porpoises, dolphins, sea turtles, and seals) considers information on populations and large take incidents dating as far back as the 1940s, but again focuses primarily on the last two decades. As with large whales, regular efforts to collect information on porpoise, dolphin,

and seal species did not begin until 1994, when amendments to the MMPA mandated preparation of annual stock assessments. For sea turtles, recovery plans were completed in the early 1990s; however, the collection of more detailed information did not begin until the mid-1990s, with the establishment of the Turtle Expert Working Group.

- **Habitat**. The analysis of impacts on marine habitat relies primarily on information generated since the 1996 passage of the Sustainable Fisheries Act (SFA). Prior to 1996, marine habitat was directly and indirectly protected through a series of environmental regulations passed in the 1970s to 1990s. The SFA, however, represented the first Federal recognition of the importance of habitat protection for maintaining healthy fisheries, and resulted in a number of new regulations and requirements that applied a more rigorous and structured habitat protection approach. The systematic studies conducted to support the development of these regulations provide the necessary context for evaluating the impact of ALWTRP regulations.

- **Affected Fisheries and Fishing Dependent Communities**. The analysis of impacts on affected fisheries and fishing dependent communities is based in large part on information gathered in the development of Fishery Management Plans (FMPs). These plans are developed under the provisions of the Magnuson-Stevens Act (MSA) and in some cases have been in place for several decades. In other cases, however, FMPs are relatively new or have yet to be implemented. In these instances, the historical analysis is generally limited to information on fishing activity and/or management actions within the last decade.

9.4 EFFECTS OF PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

The following sections consider the direct, indirect, and cumulative effects of past, present, and reasonably foreseeable future actions on each of the previously defined valued ecosystem components. The effects described below would occur without implementing any of the proposed modifications to the ALWTRP. The effects of past, present, and reasonably foreseeable future actions essentially describe the No Action Alternative (Alternative 1) in that the existing and future conditions are characterized relative to their present effects on the VECs.

9.4.1 Atlantic Large Whales

The status of large whales in the Atlantic has been and continues to be affected by numerous factors. Historically, commercial whaling produced the greatest reduction to whale stocks, and is largely responsible for driving the population of certain species to endangered status. Broad adherence to a voluntary international ban on commercial whaling has greatly reduced or eliminated this threat to the most seriously endangered species. Other threats, however, remain, the most documented of which include collisions between whales and ships and entanglements in fishing gear. Additional factors that may adversely affect Atlantic large whale stocks include water pollution, noise pollution, climate change, and prey availability. Less is known, however, about the actual impact of these threats on whale stocks. The following discussion describes the known or potential impact of these factors and provides a summary of past, present, and reasonably foreseeable future management actions taken to address the threat, if any.

9.4.1.1 Commercial Whaling

Impacts

Commercial whaling may have started as early as 800 A.D. in Scandinavia, and is known to have been practiced by the Basques off the coast of France and Spain as early as the 12th century. The practice spread to the Netherlands and Britain by the 16th century, and to the Americas by the 17th century. Early whaling, utilizing hand-held harpoons, targeted slow-swimming species like right whales and bowhead whales. With the development of steam driven vessels and, in 1868, the invention of the explosive harpoon gun, the age of modern whaling began. These innovations in whaling technology allowed whalers to target faster swimming species such as blue, fin, and sei whales.

The International Whaling Commission (IWC) was established in 1946 to regulate whaling and thus ensure the sustainability of the whaling industry (Cooke, 1995; Holt, 1999). The IWC originally negotiated whaling quotas with member nations based on estimates of whale populations. These quotas were set too high, however, and the system eventually proved incapable of preventing overexploitation (Gambell, 1999).[1] By the early 1980s, the organization had shifted its focus from whaling regulation to whale conservation. The result was the 1982 approval of a ban on commercial whaling, which came into effect in 1986 and remains in effect to this day. As a result of this ban, most IWC members have ceased whaling entirely; only Denmark, Iceland, and Norway continue any form of whaling in the North Atlantic, and the number of whales taken by these nations has been greatly reduced.

The following discussion examines the history and current impacts of whaling on right, humpback, fin, and minke whales.

[1] Membership in the IWC is voluntary; its resolutions are not binding, and its regulations are not binding on any nation that lodges formal objection to them.

Right Whales

North Atlantic right whales were the first target of commercial whaling and, consequently, the first large whale species to be hunted to near extinction by such efforts. Whalers targeted this species for several reasons, including the presence of right whales in near coastal waters, the relatively slow speed at which they swim, their tendency to float when dead, and the high yield of commercially valuable products (e.g., oil and baleen) they provided. These factors also contributed to the whale's common name, which is said to have originated from the English whalers who designated this species of whale as the "right" (i.e., correct) whale to hunt. More than 800 years of uncontrolled and intense commercial whaling is the primary reason that the population of right whales has declined to its present-day critical level.

As the stocks in these waters became depleted, hunting efforts shifted to the Labrador and New England coasts. In total, between the 11th and 17th centuries, an estimated 25,000 to 40,000 North Atlantic right whales are believed to have been taken. This intense period of early whaling may have resulted in a significant reduction in the stock of right whales by the time colonists in the Plymouth area began hunting them in the 1600s. Nonetheless, a modest but persistent whaling effort along the coast of what is now the eastern United States continued. One record from January 1700, for example, reports 29 right whales killed in Cape Cod Bay in a single day (Reeves, 1987).

The League of Nations adopted a resolution banning all whaling of right whales in 1935.[2] At that time, it is thought that fewer than 100 right whales survived in the western Atlantic (NMFS, 2001a).

Humpback Whales

Throughout their range, humpback whales were heavily exploited by commercial whalers until the middle of the 20th century. Prior to the onset of commercial whaling, the worldwide population of humpback whales is thought to have been in excess of 125,000. American whalers alone killed 14,000 to 18,000 humpbacks between 1805 and 1909 (Best, 1987) and the total North Pacific kill was estimated to be about 28,000 (Rice, 1978). Today perhaps no more than 10,000 to 12,000 exist (Braham, 1984), about ten percent of the estimated initial number.

Commercial hunting of humpbacks ceased in the North Atlantic in 1955 and in all other ocean waters in 1966. Since then, humpback whales have only been taken at three locations: off eastern Canada, where, from 1969 to 1971, 41 humpbacks were taken under a scientific permit; off western Greenland, where, until 1980, aboriginal subsistence hunters were permitted to take up to 10 humpbacks per year; and at Bequia Island in the Lesser Antilles of St. Vincent and the Grenadines, where subsistence hunters are permitted to take up to twenty humpbacks from 2003 through 2007. From 1996 to 2001, the actual take at this last location averaged two per year (IWC, 2003).

[2] The International Whaling Commission banned all whaling of right whales in 1949.

Fin Whales

Wide-scale hunting of fin whales, which tend to be found farther offshore than right whales or humpback whales, did not occur until the introduction of steam-powered vessels and harpoon gun technology and continued well into the 20th century. Commercial whaling for this species ended in the North Pacific in 1976 and the North Atlantic in 1987. Since 1987, the only area in the Northern Hemisphere where fin whales have been hunted with the authorization of the IWC is Greenland.[3] There, a take of 19 fin whales over five years (2003-2007) is permitted under the IWC's "aboriginal subsistence whaling" scheme (IWC, 2002). Meat and other products from whales killed in this hunt are marketed within Greenland, but export is illegal.

Minke Whales

Hunting of minke whales did not commence until well into this century as larger whales became fewer in number and gained protected status. Hunting of minke whales was initially confined to small fishing boats in the nearshore waters of Norway and Iceland. After World War II, Norwegian minke whaling expanded to the west. In addition, local whaling commenced off the coasts of Canada and Greenland, and Japanese whalers began to target minke whales in the North Pacific and Antarctic.[4] Under an official objection to the IWC moratorium on commercial whaling, Norway continues to hunt minke whales in the North Atlantic region. Greenland has also been active, taking a small number of minkes each year under the IWC's "aboriginal subsistence whaling" scheme. In addition, in 2003, Iceland announced its intention to take 38 minke whales from its coastal waters before the end of the year, and a total of 200 minke whales over two years for scientific research (Icelandic Ministry of Fisheries, 2003; Alvarez, 2003).

Exhibit 9-1 shows the catch history for minke whales by IWC member nations in the North Atlantic and worldwide from 2008 to 2010. These figures demonstrate that minke whales continue to be hunted in significant numbers, both in the North Atlantic and worldwide.

[3] Within the last two decades, Iceland and Spain have hunted fin whales. Iceland last reported a catch in the 1989-90 season, when it took 68 fin whales; Spain last reported a catch for the 1984-85 season, taking 48 fin whales.

[4] Over the past ten years, Japan has taken hundreds of North Pacific and Antarctic minke whales under a provision of the Whaling Convention that permits countries to take whales for scientific research.

Exhibit 9-1

CATCH[1] HISTORY OF MINKE WHALES BY IWC MEMBER NATIONS IN THE NORTH ATLANTIC & WORLDWIDE, 2008 THROUGH 2010

	2008	2009	2010
Denmark (Greenland)[2]	154	168	195
Norway[3]	536	484	468
Iceland[3]	38	81	60
North Atlantic Total	728	733	723
Worldwide Total	1,579	1,405	1,013

Notes:
[1] Catch refers to total whales struck, not total landed.
[2] Greenland takes of minke whales fall under an aboriginal-subsistence whaling permit from the IWC. Includes whales struck by West and East Greenland.
[3] Commercial operation based on official objection to the IWC moratorium.

Source: IWC, 2012

9.4.1.2 Entanglement

As discussed in the Purpose and Need chapter, fishing gear entanglements are one of the primary sources of serious injury and mortality among Atlantic large whales. The following section summarizes the risk to Atlantic large whales from entanglement in commercial and recreational fishing gear.

Entanglements in Commercial Fishing Gear

Fishermen typically leave fishing gear such as gillnets and traps/pots in the water for a discrete period, after which time the nets/traps/pots are hauled and their catch retrieved. While the gear is in the water, whales may become accidentally entangled in the lines and nets.

Whales have been observed swimming with portions of line (with or without the fishing gear) wrapped around the pectoral fin, the fluke stock, the neck, or the mouth. Documented cases have indicated that entangled animals may travel for extended periods of time and over long distances before freeing themselves or dying as a result of the entanglement (Angliss and Demaster, 1998). Younger animals are particularly at risk if the entangling gear is tightly wrapped, since the gear will become more constricting as the animals grow. The majority of large cetaceans that become entangled are juveniles (Angliss and Demaster, 1998). In addition, poor body condition and reduced blubber thickness resulting from entanglement can limit reproductive success in right whales and may increase susceptibility to disease (Miller et al., 2011).

The effects of entanglement can range from no permanent injury to death. The analysis of entanglement data presented in Chapter 2 noted the following with respect to recent data on interactions between fishing gear and Atlantic large whales:

- Entanglements that caused serious injury most frequently involved humpback whales, followed by right whales, then minke and fin whales.

- Fatal entanglements most frequently involved minke whales, followed by humpback whales, right whales, and fin whales.

- Fatal entanglements were most frequently reported off the coast of Massachusetts. Additional fatal entanglements were reported off the coasts of North Carolina, Virginia, South Carolina, and Maine.[5]

Exhibit 9-2 presents a summary of total annual mortality, annual mortality from fishing gear interactions, and the potential biological removal (PBR) level for each of the four Atlantic large whale species from 2005/2006-2009/2010. These data which almost surely under represent actual entanglement mortality demonstrate that the current number of detected deaths from fishing gear entanglements exceeds PBR levels for right and humpback whales.

Exhibit 9-2

TOTAL ANNUAL MORTALITY, ANNUAL FISHING MORTALITY AND POTENTIAL BIOLOGICAL REMOVAL (PBR) LEVELS FOR RIGHT, HUMPBACK, FIN, AND MINKE WHALES

	Right Whale	Humpback Whale	Fin Whale	Minke Whale[3]
Total Annual Mortality[1]	3.0	7.8	2.6	5.9
Total Annual Mortality, U.S. Waters Only	2.4	7.2	2.0	4.7
Annual Fishing Mortality, U.S. Waters Only[2]	1.6	5.2	0.6	4.3
PBR	0.9	2.7	6.5	69

Notes:

[1] Total Annual Mortality refers to mortality and serious injury resulting from large whale interactions with commercial fisheries and ship strikes, both in U.S. and Canadian waters.

[2] Annual Fishing Mortality refers to mortality and serious injury resulting from large whale interactions with commercial fisheries.

[3] Estimates for minke whales derived from stranding and entanglement data between 1999 and 2003 refer to U.S. waters only.

Source: Waring et al., 2012 and 2013.

Efforts to Reduce and Track Large Whale Entanglements

[5] The location where a whale is first observed and reported as entangled is not necessarily the location where the whale initially became entangled. Sightings data can be influenced by many factors, including the amount of time and area covered by the observer program and/or whether the whales are known to congregate in observed areas.

In 1996, the Atlantic Offshore Cetacean Take Reduction Team (AOCTRT) was formed to address the interaction of western North Atlantic stocks of right and humpback whales, among other species, with the Highly Migratory Species (HMS) pelagic longline, pair trawl, and pelagic driftnet fisheries for Atlantic tunas, sharks, and swordfish.[6] A draft plan to reduce takes resulting from these types of gear was submitted, but an Atlantic Offshore Cetacean Take Reduction Plan was not finalized as a separate entity. Instead, several protective measures were implemented for these fisheries through the HMS FMP. In particular, NMFS prohibited the use of pair trawls and swordfish driftnets in Atlantic pelagic fisheries, and implemented several other AOCTRT recommendations for the pelagic longline and shark gillnet fisheries. Since the nature of the fisheries that were included in the Plan has changed tremendously since 1996 when the Team was convened, NMFS disbanded the Team in August 2001.

Canada is also taking a closer look at interactions between North Atlantic right whales and Canadian commercial fisheries. In 2000, the Department of Fisheries and Oceans, in cooperation with the World Wildlife Fund Canada, developed Canada's first Right Whale Recovery Plan and recovery implementation team. The recovery plan, which is intended as a "blueprint" for action, includes a number of recommendations related to gear entanglement, whale research, and regulatory and enforcement actions.

Entanglements in Recreational Fishing Gear

Large whale entanglements may also result from interactions with recreational fishing gear, but data on recreational fishing of trap/pot and gillnet fishing gear are relatively sparse. Finfish recreational fisheries typically use rod and reel and hand lines instead of gillnets or fish pots. Recreational lobster fishing with traps/pots, however, is common, especially in state waters.[7] In 2009, the state of Massachusetts issued 10,024 recreational lobster licenses, with 5,088 of these license holders reporting that they fished for lobster (MA DMF pers com, 2012). Common fishing methods included the use of traps/pots and diving for lobsters. The number of traps fished recreationally decreased from 2008 (10,768 traps in 2008). Although many other Atlantic states also allow for a recreational lobster fishery, additional data on the extent of the recreational fishery in other states are not readily available.

Recreational use of trap/pot and gillnet gear is not governed by the ALWTRP. Therefore, while the risk of entanglement in recreational gear may be relatively small, modification of the ALWTRP will not influence recreational fisheries at this time.[8]

[6] Other cetacean species considered by the AOCTRT include Western North Atlantic stocks of sperm and pilot whales; and common, bottlenose, and spotted (Atlantic and pantropical) dolphins.

[7] Some states also allow recreational gillnet fishing.

[8] NMFS does, however, conduct outreach to recreational fishermen; for more information, see Marine Mammal and Sea Turtle Protection: Guidelines for Recreational Fishermen.

9.4.1.3 Ship Strikes

Impacts

Ship strikes – collisions between whales and ships – also pose a significant risk to whales. Exhibit 9-3 provides an estimate of average annual mortality from ship strikes for right, humpback, fin, and minke whales, based on reports from 1996 through 2001. As the exhibit indicates, the reported mortality rate for minke whales is less than 0.20 per year. In contrast, the mortality rate for larger whales is higher, ranging from 1.00 for right whales to 1.50 for fin whales. Given the depleted nature of these stocks, this represents a potentially significant source of risk. For the endangered North Atlantic right whale during the period 2005 through 2009, the minimum rate of annual human-caused mortality and serious injury to right whales from ship strikes averaged 1.6 per year (U.S. waters, 1.2; Canadian waters, 0.4) (Waring et al. 2012). At this time, both ship strikes and gear interactions remain a concern for the continued existence of right whales. As with all estimates of mortality presented here, it is likely that these numbers underestimate the true mortality due to ship strikes.

Exhibit 9-3

AVERAGE ANNUAL MORTALITIES FROM SHIP STRIKES, 1996 THROUGH 2001

Right Whales	Humpback Whales	Fin Whales	Minke Whales
1.00	1.17	1.50	0.17

Source: Analysis of data from Laist et al., 2001, and Jensen and Silber, 2004.

Fatal ship strikes of large whales first occurred in significant numbers during the 1950s to 1970s, as the number and speed of ships increased. A review of 58 known vessel collisions by Laist et al. (2001) revealed that while all sizes and types of vessels can hit and injure whales, the most severe injuries result from collisions involving ships that are greater than 80 meters in length or travelling at speeds exceeding 13 knots.[9] The risk of such strikes is high near the Northeast seaboard's busiest ports and shipping lanes, some of which are located near waters that large whales frequent. For example, the main shipping lane to Boston traverses the Stellwagen Bank National Marine Sanctuary, a major feeding and nursery area for several species of baleen whales. Similarly, Cape Cod Canal, another major conduit for shipping along the New England coast, provides passage from Buzzards Bay to Cape Cod Bay, an area known for large whale

[9] Most whales swim at three to four knots. When frightened, some whales can swim seven to 14 knots, while a few can reach more than 26 knots. Laist et al. (2001) note several plausible explanations for their observation that collisions leading to serious injury or death generally involve vessels traveling at speeds greater than 13 knots: (1) whales are far more successful at avoiding ships moving at less than 13 knots; (2) ships spend most of their transiting time at speeds of 13 knots or above; (3) collisions at speeds of less than 13 knots are less likely to injure whales seriously or to damage ships, and thus are less likely to be noted and reported; and/or (4) the low number of collisions at speeds of less than 13 knots is an artifact of the small sample size of the collision records available.

activity (Hoyt, 2001; NMFS, 2001b). In 1999, 1,431 commercial ships used the port of Boston (NMFS, 2001b). In a 1994 survey, 4,093 commercial ships greater than 20 meters in length passed through the Cape Cod Canal, with an average of 11 commercial vessels crossing per day (Wiley et al., 1995).

In southeastern waters, shipping channels associated with Jacksonville and Fernandina, Florida, as well as Brunswick, Georgia bisect the area that contains the highest concentration of whale sightings within right whale critical habitat. These channels and their approaches serve several commercial shipping ports and military bases. The commercial ports are growing and the port of Jacksonville is undergoing major expansions (NMFS, 2001b).

In the Northeast Atlantic, various initiatives have been planned or undertaken to expand or establish high-speed watercraft services. In 1998, high-speed ferry service was initiated between Bar Harbor, Maine and Yarmouth, Nova Scotia. The ferry makes regular runs during Nova Scotia's busy tourist season, which coincides with peak concentrations of right whales feeding on summering grounds. The 91-meter (300-foot) catamaran travels at speeds up to 90 kilometers per hour (48 knots).

Smaller vessels are also known to strike marine mammals, and whale strikes resulting from interaction with whale watch boats and recreational vessels have been recorded. In New England, approximately three dozen whale watch companies operate 50 to 80 boats (NMFS, 2001b). In addition, over 500 fishing vessels and over 11,000 pleasure craft frequent the waters of Massachusetts and Cape Cod Bays (NMFS, 2001b). All of these vessels pose some risk to whales. Although minor vessel collisions may not result in immediate death, the event may weaken or otherwise harm the whale, increasing its vulnerability to other effects such as entanglements, pollution, or disease.

Species Most Affected

Laist's review found records of ship collisions involving 11 species of large whales. The species most commonly struck by ships was the fin whale, followed by the North Atlantic right whale and the humpback whale. However, the frequency with which these incidents occur and are reported is strongly influenced by the distribution and abundance of the whale species. Exhibit 9A-1 in Appendix 9-A provides data on ship collisions involving right, humpback, fin, and minke whales over the last two to three decades.

Laist et al. (2001) concluded that for some large whale populations, the number of ship strikes has little impact on stock status, but for the dwindling North Atlantic right whale population, ship strikes are a serious obstacle to the growth and successful recovery of the species. The behavior of right whales makes them particularly vulnerable to collisions.[10] Right whales swim close to shore and in or adjacent to major shipping lanes. In addition, they spend

[10] Observations of right whales indicate that responses to vessels are dependent on the whale's behavior at the time. Courtship and surface feeding are examples of behaviors during which northern right whales appear unresponsive to the approach of boats. Cows with calves and single long-diving whales appear to be more sensitive to engine noise or vessel maneuvering and have been observed avoiding boats.

much of their time at the surface, skim feeding, resting, mating, and nursing. These behaviors can occur for periods of an hour or more. Calves, which spend most of their time at the surface due to their undeveloped diving capabilities, are particularly vulnerable.

For the period 2005 through 2009, the minimum rate of annual human-caused mortality and serious injury to right whales as a result of ship strike records averaged 1.6 per year (U.S. waters, 1.2; Canadian waters, 0.4). (Exhibit 9-4).

Exhibit 9-4

RIGHT WHALE MORTALITIES FROM SHIP STRIKES, 2005-2009

Region	Mortalities from Ship Strikes	Total Mortalities[1]
Southeast	3	5
Mid-Atlantic Coast	0	1
Great South Channel	1	1
Bay of Fundy	2	2
TOTAL	6	9

Notes:
[1] Total documented mortalities includes mortalities from entanglement or unknown causes.

Source: Waring et al, 2012.

The actual rate of ship collisions with right whales is considered to be much higher than the data indicate. Experts generally believe that many ship strikes go unreported or undetected. In addition, minor ship collisions that may not mortally injure a whale can often weaken the whale, making it more susceptible to further injury (Kraus et al., 1993).

Efforts to Track and Reduce Ship Strikes

NMFS' ongoing program over the last decade to reduce ship strikes to right whales includes aerial surveys to notify mariners of right whale sighting locations, operation of the northeast U.S. and southeast U.S. mandatory ship reporting systems to provide information to mariners entering right whale habitat, working with the U.S. Coast Guard (USCG) to issue periodic notices to mariners regarding ship strikes, support of Recovery Plan Implementation Teams that provide recommendations to NOAA Fisheries on recovery activities, support of shipping industry liaisons, and Endangered Species Act (ESA) section 7 consultations.

Recognizing the persistent threat that ship strikes pose to North Atlantic right whales, a joint effort between NMFS and the International Fund for Animal Welfare formed the Northeast Implementation Team, also known as the Ship Strike Committee, in 1994. The Committee identified a range of options for reducing the risk of ship strikes, including routing vessels around high-risk areas, restricting vessel speeds to a maximum of ten knots in high-risk areas,

and changing routes to minimize time in those areas. The Committee submitted its recommendations in a report to NMFS in 2001. NMFS used the report on recommended ship strike reduction management measures as a baseline to develop a proposed Strategy to Reduce Ship Strikes of Right Whales (Strategy), a multi-year blueprint of the specific steps to reduce or eliminate the threat of ship strikes to right whales along the U.S. eastern seaboard. The Strategy takes into account regional differences in oceanography, commercial ship traffic patterns, navigational concerns, and whale biology. Actions needed to execute the overall project include rulemaking, international measures, and various analyses (i.e., economic analyses, NEPA, Port Access Route Studies).

The proposed Strategy was approved by the agency in 2003, and interagency working group meetings were subsequently held to review and provide comments on the Strategy. NMFS published an Advance Notice of Proposed Rulemaking on June 1, 2004 (69 FR 30857) to solicit comments on proposed operational measures for the shipping industry contained within the Strategy, including consideration of routing and speed restrictions. These measures, as proposed, would be implemented within each of three broad regions - the southeastern coast of the U.S., the Mid-Atlantic region, and the northeastern coast of the U.S. - and would contain specific areas (with boundaries) and times in which protective measures would be in effect. The operational measures proposed in the Strategy would generally apply to vessels 65 feet (19.8 meters) and greater, based on information regarding confirmed ship strikes and known vessel size. In June 2005, NMFS released a draft Environmental Assessment to analyze the potential environmental impacts of the operational measures of the Ship Strike Strategy (NMFS, 2005). NMFS released a proposed rule in June 2006 (June 26, 2006, 71 FR 35229; August 14, 2006, 71FR 46440) and a Draft Environmental Impact Statement in July 2006 (July 7, 2006, 71 FR 38640; July 14, 2006, 71 FR 36299). In December 2008, NMFS promulgated these rules for all vessels 65 feet or greater limiting vessel speed to 10 knots or less in Seasonal Management Areas where whales are known to occur at particular times (73 FR 60173, October 10, 2008). NMFS also expects, but does not require, mariners to avoid or limit speed to 10 knots or less in Dynamic Management Areas.

Concurrently, as an additional component of the Strategy, NMFS submitted a proposal to the International Maritime Organization (IMO) in 2006 to amend the Boston Traffic Separation Scheme to reduce the likelihood of ship strikes. The IMO has voted to adopt this proposal, shifting and narrowing Boston's shipping lanes to reduce their overlap with waters in which right whales and other large whales are frequently found.

According to Laist et al. (2001), ship operators often do not see whales that they strike, or see them too late to avoid a collision.[11] To address this problem, NOAA developed and, in late 1996, implemented the Northeast Right Whale Early Warning System (EWS), now known as the Right Whale Sighting Advisory System (SAS); a complementary system, the Mandatory Ship Reporting (MSR) System, was implemented in July 1999. SAS uses air and ship surveys to provide real-time right whale sighting information to the commercial shipping industry and

[11] Mariners may have difficulty seeing right whales because of their dark color and low profile in the water. In some cases, ships may hit right whales without ever knowing a collision occurred. Laist et al. (2001) found that many ship strikes involving vessels over 400 feet appear to go unrecognized by the vessel's crew; those that are recorded are often discovered when the whale becomes pinned to the vessel's bow and is noticed upon entering port.

vessel operators. It provides data to MSR, which operates year-round in a 6,700 square mile area off of Cape Cod, including all 842 square miles of the Stellwagen Bank National Marine Sanctuary, and from November 15 through April 15 in a 2,500 square-mile nursery area near the Georgia/Florida border. Under the system, all commercial ships of 300 gross tons or more that enter the two areas must contact a Coast Guard-operated shore station to report course, speed, location, destination, and route. In return, a ship will receive the latest information about right whale sightings and avoidance procedures that may prevent a collision. The reporting system affects no other aspect of vessel operations and is provided as a free service to vessel operators. Officials also plan to use the ship reporting system to gather data on the number and traffic patterns of ships travelling through right whale habitat to identify other possible measures to reduce future ship strikes. The entire program is to be reviewed after three to five years to assess its effectiveness, and to introduce advances in ship communication technologies that have become available.

Canada has also taken measures to reduce collisions between ships and right whales within its waters. During the late summer to early fall, over two-thirds of the North Atlantic right whale population can be found in the Bay of Fundy, an area traversed by shipping lanes to the Port of Saint John, New Brunswick. About 800 vessels, primarily tankers transporting crude and refined oil products, use the shipping lanes leading to this major port each year. Conservation areas for the right whale were designated by the Canadian government in 1993, encompassing the shipping lanes leading to St. John. Fundy Traffic, a Vessel Traffic System, was soon implemented in the Bay of Fundy to monitor all vessels 65 feet (20 meters) or greater in length that enter the area. The system, like NOAA's EWS, notifies vessels of right whale sightings and provides other relevant information. In April 2002, Transport Canada submitted a proposal to the IMO to amend the traffic separation scheme (TSS)[12] in the Bay of Fundy.[13] The Canadian proposal was adopted at the annual meeting of the IMO's Marine Safety Committee the following December (Canada News Wire, 2003). The changes took effect July 1, 2003 and shifted traffic lanes in the northern TSS area to the east, where the population density of right whales is considerably lower (Transport Canada, 2003).

Over the past decade, the threat of ship collisions to the right whale species has also prompted increased attention by the research community. Ongoing research efforts have focused on developing a better understanding of right whale behaviors around vessels, and the development of new technologies (e.g., passive acoustics monitoring, predictive modeling and sonar detection) to improve management of vessel-whale interactions.[14]

Recent studies indicate that the likelihood of the occurrence of a vessel strike is decreased by reduced vessel speed (Gende et al. 2011). Reduced vessel speeds also reduce the magnitude

[12] The TSS provides for the separation of traffic between the southeastern entrance to the Bay of Fundy and the Port of Saint John, organizing traffic through an area used extensively for fishing. Since the establishment of the TSS in 1983, extensive research has been compiled demonstrating the need for changes to help protect the North Atlantic right whale population in this area.

[13] The International Maritime Organization is the United Nations agency responsible for improving ship traffic and safety.

[14] For more information on ongoing research efforts, see Russell et al., 2001.

of the impact if a whale-ship collision does occur (Vanderlaan and Taggart 2007; Campbell-Malone, et al. 2008; Silber et al. 2010). Studies conducted since the implementation of the vessel speed rule indicate that lowered vessel speeds reduce the risk of fatal whale strikes (Vanderlaan et al. 2009; Vanderlaan and Taggart 2009; Gende et al. 2011; Lagueux et al. 2011; Wiley et al. 2011). In particular, Lagueux et al. (2011) and Wiley et al. (2011) concluded that NMFS's 2008 10-knot vessel speed restrictions reduced the risk of lethal strikes of right whales by 38.5% and 56.7% in waters off the southeast U.S. coast and New England, respectively. The research used to initiate vessel speed restrictions to reduce vessel collisions with right whales, and studies subsequent to implementation of the regulations support continued use of the restrictions (Silber and Bettridge 2012). Therefore, on December 9, 2013, NMFS published a final rule (78 FR 73726) eliminating the expiration date (or "sunset clause") contained in 2008 regulations requiring vessel speed restrictions to reduce the likelihood of lethal vessel collisions with North Atlantic right whales. The 2008 speed regulations would have expired on December 9, 2013, unless the sunset clause was removed.

9.4.1.4 Water Pollution

Impacts

Experts believe that pollution in the marine environment adversely affects marine mammals, including cetaceans. Sub-lethal direct effects of exposure to chemical pollutants may alter cetacean physiology, including reproduction, immune defense, endocrine system functions, and possibly neural systems that control social and migratory behavior. Indirect effects include impacts on cetacean prey species and cetacean exposure to pollutants present in prey. Although little direct evidence of the link between chemical pollution and cetaceans is available, evidence of the adverse effects of pollution on terrestrial species and non-cetacean marine mammals is sufficient to warrant concern of similar impacts on cetacean species.

Types of contaminants entering the coastal environment from both point and non-point sources include suspended solids, organic debris, metals, synthetic organic compounds, nutrients, and pathogens. The coastal waters near Boston, Massachusetts have historically been among the most contaminated in North America, with elevated concentrations of trace metals, PCBs and petroleum hydrocarbons (Pearce, 1990). Additional chemical and nutrient loads flow into Massachusetts Bay from the Merrimack River in the north, and several other large rivers from the southern coast of Maine. Contaminant sources include sewage and industrial discharges, combined sewer overflows, stormwater runoff, groundwater inflows, in-place sediments, seeps, and atmospheric deposition (MBP, 1991). Dominant current patterns in the Northeast make it probable that industrial pollutants released into coastal waters will affect important feeding areas off the coast of Massachusetts and Cape Cod Bay. In addition, the proximity of large whale habitats to major shipping lanes introduces the potential of chemical exposure from aromatic hydrocarbons (oil spills, leaks, and discharges) and organotins (leaching from hulls).[15]

The Massachusetts Bay Disposal Site (MBDS), located 9.5 miles east of Deer Island, began discharging secondary sewage effluent into Massachusetts Bay about 16 miles from identified right whale critical habitat in 2000 (NMFS, 2001a). NMFS concluded in a 1993

[15] For more information see Busbee et al., 1999.

biological opinion that the discharge of sewage at the MBDS may affect, but is not likely to jeopardize, the continued existence of any species listed or proposed to be listed under the ESA. Uncertainties remain, however, concerning potential impacts on the marine ecosystem, the food chain, and endangered species. In light of these uncertainties, the Massachusetts Water Resources Authority is conducting post-discharge monitoring.

Exhibit 9-5 lists chemical contaminants of possible concern to North Atlantic right whales. The list was compiled at a workshop held in Falmouth, Massachusetts in April 2000, convened to identify and set research priorities for potential factors affecting right whale reproduction. The list includes contaminants to which right whales may be exposed, based on (1) trophic level and prey selection, (2) known patterns of chemical use, and (3) the existence of a regional source. Given the overlapping ranges of all four key Atlantic large whale species and their mutual classification as baleen whales, the list can be used as a preliminary guide to those contaminants that might also affect humpback, fin, and minke whales.

Exhibit 9-5

CLASSES AND EXAMPLES OF CONTAMINANTS POTENTIALLY AFFECTING NORTH ATLANTIC RIGHT WHALES

Chemical Class	More Specific Compounds or Examples
Persistent organic pollutants	PCBs, PCDDs, PCDFs, PAHs[16], DDT, chlordanes, HCH, other pesticides
Flame retardants	PBDEs (polybrominated diphenyl ethers) and other brominated flame retardants
Plasticizers	Phthalate esters
Surfactants	Alkylphenol ethoxylates
New-era pesticides and herbicides	Not available
Municipal and industrial effluents	Endocrine disrupting compounds (e.g., synthetic estrogens, natural hormones, pulp byproducts)
Anti-fouling agents	Organotins and replacement compounds
Dielectric fluids	PCB replacements (e.g., PCNs – polychlorinated naphthalenes; PBBs – polybrominated biphenyls)
Aquaculture-related chemicals	Antibiotics, pesticides
Metals	Methyl mercury (MeHg) via atmospheric deposition
Radionuclides	Not available

Source: Reeves et al., 2001. For more detailed lists and further discussion, also see O'Shea et al., 1999 and Reijnders et al., 1999.

Whales are particularly vulnerable to chemical pollutants because they are long-lived, have extensive fat stores (where chemical pollutants are known to accumulate), and are often top predators in the food chain. Chemical pollutant levels in baleen whales, however, have consistently been found to be one to two orders of magnitude lower than levels found in seals and odontocetes, or toothed cetaceans. This is largely attributed to the fact that baleen whales feed primarily on plankton, krill, and small fish that are at the top of a much shorter food chain and therefore have lower accumulated levels of chemical pollutants.[17] Right whales may even be further protected from this type of risk because of their preference for copepods, a low trophic

[16] Roper and Cherry, 1994.

[17] For more information see Aguilar et al., 1999.

level organism, making them less susceptible to the bioaccumulation of organochlorines and metals than humpback, fin, or minke whales, all of which feed more regularly on small fish.[18]

Concentrations of organochlorines, including dichloro-diphenyl-trichloroethane (DDT), polychlorinated biphenyls (PCBs), hexachlorohexanes (HCHs), aldrin, and dieldrin, have been observed in many species of marine mammals, including right, humpback, and fin whales in the North Atlantic (Kraus et al. 2007, Montie et al. 2010). PCBs were found in samples of North Atlantic right whale blubber (Weisbrod et al., 2000a) and at low levels in zooplankton sampled from Cape Cod Bay (Reeves and Clapham, 2001). Woodley et al. (1991) found PCBs, DDT, and other organochlorines in northern right whale biopsy samples from the Bay of Fundy, Browns, and Baccarro Banks (Woodly et al., 1991). Organochlorines have also been reported in humpback, fin, and minke whales (Gauthier et al., 1997; Hobbs et al., 2003), fin and sei whales (Borrell, 1993; Borrell and Aguilar, 1987), and pilot whales (Muir et al., 1988).

Heavy metal concentrations have also been observed in many species of marine mammals.[19] Sanpera et al. (1993) analyzed tissue samples from 36 fin whales from the Northeast Atlantic for their total and organic mercury concentrations. A positive correlation between age and the concentration of mercury in the liver was found, suggesting a slow and steady rate of accumulation over time and a low rate of excretion (Sanpera et al., 1993).

A final source of potential pollution stress is biotoxins. Biotoxins are highly toxic compounds produced by harmful algal blooms (HABs).[20] There is strong evidence that higher trophic level marine organisms, such as cetaceans and marine turtles, can acquire lethal or sub-lethal doses of these phytoplankton-derived toxins through consumption of zooplankton and planktivorous finfish. Five major classes of biotoxins are associated with HABs: saxitoxins (responsible for paralytic shellfish poisoning); brevetoxins (responsible for neurotoxic shellfish poisoning in the southeastern U.S.); domoic acid (amnesic shellfish poisoning); okasdaic acid and dinophysistoxins (diarrhetic shellfish poisoning); and ciguatoxins. The first three of these classes have been implicated in marine mammal mortality events (Reeves et al., 2001).

Saxitoxins, brevetoxins and domoic acids are the three HAB groups that occur most often in the distribution range of the four ALWTRP species. Saxitoxins cause loss of equilibrium and respiratory distress, with possible implications for feeding efficiency (Reeves et al., 2001; NEFSC, 2003a). An acute exposure to saxitoxin-contaminated mackerel was found to have caused the death of at least 14 humpbacks, two fin whales, and a minke whale off the coast of Massachusetts between November 1986 and January 1988 (Geraci, 1989). In August 2003, another multiple whale mortality occurred on Georges Bank and is suspected to be the result of exposure to domoic acid, a neurotoxin that once prompted the closing of a scallop fishery in the

[18] For more information see O'Shea et al., 1994 and Montie et al., 2010

[19] For more information see Bowles, 1999.

[20] Algae are photosynthetic plant-like organisms that live where there is water. Most species of algae or phytoplankton are not harmful and serve as the energy producers at the base of the food web, without which higher life on this planet would not exist. Occasionally, the algae grow very fast or "bloom" and accumulate into dense, visible patches near the surface of the water. "Red Tide" is a common name for such a phenomenon where certain phytoplankton species contain reddish pigments and "bloom" such that the water appears to be colored red.

mid-1990s (CCEHBR, 2003). In this case, 17 dead whales were found floating over a 125-mile stretch of ocean between Canada and the U.S. At least six of the dead whales were humpbacks; another was a fin whale (NEFSC, 2003b). The event initially raised fears that the North Atlantic right whale might also be at risk, but none appear affected to date. These events, however, indicate that the impact of harmful algal blooms and biotoxins may be greater than previously thought.

Efforts to Control Water Pollution

A number of Federal statutes and international agreements are designed to control water pollution at the national or international level. Past and present actions examined include:

- the Clean Water Act;
- the Coastal Zone Management Act of 1972;
- the Marine Protection, Research, and Sanctuaries Act of 1972;
- the Oil Pollution Act of 1990; and
- international laws regarding marine pollution.

Clean Water Act

The Federal Water Pollution Control Act, or the Clean Water Act (CWA), is the principal Federal law controlling polluting activities in the nation's streams, lakes, and estuaries. Originally enacted in 1948, a series of amendments in 1972 and 1977 gave the Act its current shape and structure. The Act consists of two major parts: regulatory provisions to control industrial and municipal dischargers, and financial assistance provisions to help fund the construction of municipal wastewater treatment facilities.

Prior to 1987, provisions under the CWA were primarily directed at controlling point source discharges of pollution; i.e., pollution originating from discrete and identifiable sources, such as municipal and industrial facilities or bypasses and overflows from municipal sewage systems. In 1987, Congress passed the most extensive changes yet to the CWA, directing new attention to non-point source water pollution, which accounted for an increasing proportion of the nation’s remaining water quality problems. The 1987 amendments added Section 319 to the Act, requiring states to develop and implement programs to control non-point sources of pollution, including runoff from farm and urban areas, construction, and forestry and mining sites.

A number of the provisions included in the CWA contribute indirectly and directly to maintaining the water quality of the marine environment. Specifically, one of the goals of the Act is to provide for the protection and propagation of fish, shellfish, and wildlife (33 U.S.C. 1251(a)(2)). In addition, the Act contains provisions to address bottom sediment removed by dredging, which now constitutes the majority of material dumped into the nation’s coastal and

marine waters (Boesch et al., 2001). Under the CWA, the U.S. Army Corps of Engineers issues permits for the disposal of dredged material, subject to guidelines established by EPA. Protocols have been developed to determine whether dredged sediments are suitable for placement in the ocean or coastal environment.

Coastal Zone Management Act of 1972

The Coastal Zone Management Act (CZMA) encourages environmentally sound management of coastal areas and provides grants to be used in maintaining coastal areas. It requires that Federal agencies be consistent with the enforceable policies of state coastal zone management programs when conducting or supporting activities that affect a coastal zone. As defined in the Act, the coastal zone includes coastal waters extending to the outer limit of state submerged land title and ownership, adjacent shorelines, and land extending inward to the extent necessary to control shorelines. The coastal zone includes islands, beaches, transitional and intertidal areas, and salt marshes.

Marine Protection, Research, and Sanctuaries Act of 1972

The Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA, P.L. 92-532*)* has two basic aims: (1) to regulate intentional ocean disposal of materials, and (2) to authorize related research. Title I of the Act, often referred to as the Ocean Dumping Act, prohibits dumping of all municipal sewage, sewage sludge, and industrial waste, and regulates the disposal of dredged material under a Department of the Army permit. The EPA also designates sites and imposes strict tests for dredged material disposal. Research provisions concerning general and ocean disposal research are contained in Title II; Title III authorizes the establishment of marine sanctuaries; Title IV established a regional marine research program; and Title V addresses coastal water quality monitoring.

Oil Pollution Act of 1990

After the *Exxon Valdez* oil spill devastated the Alaskan coastline in 1989, Congress passed the Oil Pollution Act of 1990. The Act established an extensive liability scheme designed to ensure that, in the event of a spill or release of oil or other hazardous substances, the responsible parties are liable for the removal costs and damages that result from the incident. A "responsible party" includes the owner, operator, or demise charterer of a vessel. Additionally, a responsible party may be liable for removal costs and damages to natural resources; real or personal property; subsistence use; revenues, profits and earning capacity; and public services.

International Laws Regarding Marine Pollutants

The International Maritime Organization (IMO) is the United Nations specialized agency responsible for improving maritime safety and preventing pollution from ships. Pollution of the marine environment by ships of all types, including commercial fishing vessels, is strictly

controlled by the International Convention for the Prevention of Pollution from Ships (known as MARPOL 73/78). The MARPOL 73/78 Convention is a combination of two treaties adopted in 1973 and 1978, respectively, and has been updated by amendments over the years. Any violation of the MARPOL 73/78 Convention within the jurisdiction of any Party to the Convention is punishable either under the law of that Party or under the law of the flag state.

9.4.1.5 Noise Pollution

Impacts

Whales, dolphins, and other marine mammals primarily rely on their hearing to locate food, detect predators, find mates, and keep herds together. Large whales communicate primarily using low-frequency sounds (typically below 1000 Hertz) that travel long distances through water (NRDC, 1999). The growing amount of noise within this range from ships, supertankers, underwater explosions, and other sources represents an additional potential threat to large whales. Noise pollution may disrupt and inhibit feeding and reproduction; displace whales from traditional calving grounds, feeding grounds, or migratory routes; or, in the worst case, cause direct auditory damage and death. Noise pollution sources include ship and boat propeller noise; drilling, blasting, and dredging; acoustic deterrent devices used by fish farms and fishing vessels; sonar and airguns used in seismic exploration; and the use of low- and mid-frequency sonar in military operations. In recent years, this new source of stress has garnered increased attention from both the scientific community and the general public. The impact of acoustic pollution, however, has been difficult to ascertain, and its effect on marine mammals is one of the least understood subjects within marine mammal science.

Right whales use vocal calls for social communication, including mate attraction (Parks and Tyack 2005). A recent study showed that right whales increase their call amplitude linearly with the rise of background noise, indicating that the whales are able to modify their vocalizations to compensate for the increased noise of their environment (Parks *et al.* 2011). The cost of this behavior modification may include increased energy expenditure or modification of the original information of the signal, but more data are needed to fully understand the effects of anthropogenic sound on right whale communication (Parks *et al.* 2011). Noise pollution has been correlated to an increase in stress-related fecal hormone metabolites in North Atlantic right whales (Rolland *et al.* 2012). Chronic elevations of these fecal hormone metabolites have been shown to negatively affect growth, immune system response, and reproduction in a variety of vertebrate species (Rolland *et al.* 2012 citing Sapolsky *et al.* 2000; Romero and Butler 2007). Rolland *et al.* (2012) suggested that anthropogenic noise pollution may have negative consequences for the North Atlantic right whale's continued viability.

The best-known noise pollution incident occurred in March 2000 with the stranding of 17 cetaceans of at least four different species (three species of beaked whale and one species of baleen whale) in the Bahamas. Seven of the stranded animals are known to have died, while ten other animals were returned to the water alive. An investigation jointly undertaken by the Navy and NOAA concluded that mid-range frequency sonar aboard U.S. Navy ships transiting the area represented the most plausible source of the event (NMFS, 2001c). Other recent incidents associated with underwater sonar use at mid-range frequencies include a 1996 stranding of a dozen Cuvier's beaked whales off the coast of Greece, and most recently, in 2002, a stranding of

18 whales (11 died) in the Canary Islands. Both of these incidents coincided with North Atlantic Treaty Organization (NATO) units carrying out naval acoustic exercises in the area (Government of the Canary Islands, 2002). A recent study following up on the 2002 stranding event, released in the journal *Nature*, provides the "most direct evidence to date that sonars can kill marine mammals" (Dalton, 2003). The study concluded the deaths were a result of decompression sickness after the whales shot to the surface to escape sonar activity during Spanish-led international naval exercises (Jepson et al., 2003).

Although acute mortality from noise pollution is established, much less is known about the impact of chronic noise pollution on cetacean health. Potential impacts from long-distance undersea noise vary from no effect to temporary hearing loss or long-term behavioral changes that may reduce whale survival and reproduction. One response of particular concern is the potential for the displacement of cetacean populations as a result of high levels of anthropogenic noise.

In the Atlantic, the three primary sources of anthropogenic ocean noise include shipping, offshore oil activities, and military exercises. Anthropogenic ocean noise is principally the result of the relatively recent increase in shipping traffic. A modern-day supertanker cruising at 17 knots fills the frequency band below 500 Hz and produces sounds of 190 decibels or more. Mid-sized ships such as tugboats and ferries produce sounds of 160 to 170 decibels in the same frequency range (NRDC, 1999). Whale-watching vessels also have the potential to disrupt cetacean behavior. A survey of the response of baleen whale species to whale-watching vessels was done in 1986, and found that minke whales, humpback whales, and fin whales appeared to habituate to boats, while right whales exhibited no change in behavior.[21] Another study of fin whales in the Gulf of Maine found significantly reduced dive times and a reduced number of blows per surfacing sequence when whale-watching vessels were present (Stone, 1986). Other studies have found similar results, but whether this change in behavior represents an adverse impact to cetaceans is largely unknown.

The most serious consequence of vessel disturbances is the potential for the cumulative effects of vessel traffic to cause an abandonment or decrease in the use of an important habitat (Tyack, 1990). There have been documented cases of this phenomenon with bottlenose dolphins (Evans et al., 1993), harbor porpoises (Evans et al., 1994), beluga whales (Finley et al., 1990), and sperm whales (Mate et al., 1994) in association with seismic exploration and vessel traffic. There also has been suspected habitat abandonment in response to boating activity, aircraft, and industrial activity (e.g., dredging) by humpback whales (Green, 1991), blue whales (Macfarlane, 1981 in Gordon and Moscrop, 1996), grey whales (Reeves, 1977 in Richardson et al., 1995) and bowhead whales (Richardson et al., 1987).

A second source of significant ocean noise is offshore oil and petroleum exploration activity. Offshore oil exploration requires the use of drilling rigs and airgun arrays, both of which produce high-energy, low-frequency undersea noise. To detect oil deposits beneath the ocean floor, most companies rely on the explosive power of airguns, arranged in rows behind a

[21] It has been suggested that the type of activity in which right whales are engaged influences their sensitivity to, and tendency to avoid, noise disturbance and vessel activity, but more studies are needed (Watkins, 1986).

small ship. The guns fire at short intervals and can produce sounds over 250 decibels. To extract the oil, platforms and pipes are constructed, drills positioned, and holes bored into the bedrock. In the Atlantic Outer Continental Shelf (OCS) area, the potential for noise pollution associated with offshore oil and petroleum exploration exists.[22] According to the Minerals Management Service (MMS), a total of 433 blocks in the Atlantic OCS area have been leased for exploration, and a total of 49 exploratory wells have been drilled (MMS, 2003).

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Although the evidence is limited, military activities have the potential to disturb, injure, or kill Atlantic large whales. In early 1996, six right whale deaths were documented. Five of these (one attributed to a ship strike) occurred in waters adjacent to the Southeast U.S. (SEUS) critical habitat area. Navy facilities adjacent to the critical habitat use offshore areas for gunnery exercises. Because several of the carcasses were found near a Navy gunnery range, it was suspected that some deaths were related to underwater explosions; however, no conclusive link was established.[23]

Additional controversy has surrounded the potential use of Surveillance Towed Array Sensor System Low Frequency Active (SURTASS LFA) Sonar. SURTASS LFA is a long-range, low frequency (between 100 and 500 Hertz) sonar system that has both active and passive components. The sonar's detection capability does not rely on noise generated by the target, but rather on the use of active sounds or pulses originating from the system. The purpose of SURTASS LFA sonar is to provide the Navy with a reliable and dependable system for long-range detection of quieter, harder-to-find submarines. Its low frequency sound travels in

[22] The continental shelf is the gently sloping undersea plain between a continent and the deep ocean. Under U.S. law, the Outer Continental Shelf (OCS) consists of the submerged lands, subsoil, and seabed lying between the seaward extent of the states' jurisdiction and the seaward extent of Federal jurisdiction. In 1953, Congress designated the Secretary of the Interior to administer mineral exploration and development of the entire OCS through the Outer Continental Shelf Lands Act (OCSLA). Under the Act, the OCS has been divided into four leasing regions: the Gulf of Mexico OCS Region; the Atlantic OCS Region; the Pacific OCS Region; and the Alaska OCS Region.

[23] The Navy is in ongoing and open consultations with NMFS on the potential effect of some of its operations on protected species, and has made a number of significant modifications to its operations to facilitate protection of right whales in the SEUS critical habitat (Silber and Clapham, 2001).

seawater more effectively and for greater distances than the higher frequency sound used by most other active sonar systems (U.S. Dept. of Navy, 2001).

To evaluate the impact of the system on endangered species, the Navy funded an independent study on the effect of LF sonar on four baleen species of whales (blue, fin, gray, and humpback whales).[24] The research determined that these LF-sensitive marine mammals, when exposed to sound pressure levels (SPLs) ranging from 120 to 150 decibels, exhibited only minor, short-term behavioral responses. Given the uncertainty of the science in this area, however, a number of measures were included in the final NMFS rule on the military use of SURTASS LFA, including use restrictions in coastal zones and a monitoring and detection plan.

Environmental and animal welfare groups have opposed deployment of SURTASS LFA Sonar because of concern that increased noise levels in the marine environment would adversely affect marine mammals and other sea life. Opponents argue that the use of SURTASS LFA represents a global activity that does not qualify for a small take authorization; that it will have more than a negligible impact on marine mammals; that insufficient research has been conducted on short-term and long-term impacts on marine mammals; that marine mammal takings during wartime have not been analyzed; that the monitoring of potential impacts is insufficient; and that the modeling used for impact assessment is faulty. These concerns led the Natural Resources Defense Council (NRDC) and other organizations to file suit against NOAA for failure to enforce the MMPA, ESA, and NEPA. In October 2002, a preliminary injunction was granted against broad deployment of the LFA system. On August 26, 2003, a Federal judge ruled that the Navy's plan to deploy LFA violated numerous Federal environmental laws and could endanger whales, porpoises, and fish. The final decision ordered the Navy to reduce the system's potential harm to marine mammals and fish by negotiating limits on its use with the conservation groups who had sued over its deployment.[25] Currently, the Navy can only test and train personnel in the use of the SURTASS LFA system in a two million square kilometer area near Guam, in the western Pacific Ocean (Dalton, 2003).

Individually, each of the sources of undersea noise pollution may not be significant, but the cumulative impact of long-term exposure combined with other whale threats has become the primary concern in this area. Exhibit 9-6 provides NRDC's preliminary list of marine mammal acoustic "hot spots" along the Atlantic coast.

[24] The study was limited to these four species of baleen whales because (1) baleen whales are considered to have the best hearing in the low frequency band of all marine mammals, (2) these species have protected status under the law, and (3) there is prior evidence that these species react to low frequency sounds.

[25] For more information, see NRDC v. Evans, Opinion and Order on Cross-Motions for Summary Judgment, Filed August 26, 2003. Available at: http://www.cand.uscourts.gov/.

Exhibit 9-6

A PRELIMINARY LIST OF ACOUSTIC HOTSPOTS ON THE ATLANTIC COAST

Hotspot	Adjacent Coast	Some Local Species of Concern	Human Sources of Local Sound
Bay of Fundy	New Brunswick & Nova Scotia	Right, fin, and minke whales, harbor porpoise	Shipping, fisheries
Cape Cod Bay	Massachusetts	Right and humpback whales	Shipping, pleasure craft, whale-watching
Great South Channel	Massachusetts	Right, humpback, fin, and minke whales; numerous odontocetes	Shipping
St. Simons Is. to Melbourne Beach	Georgia & Northern Florida	Right whale	Shipping, dredging, military activity

Source: Natural Resources Defense Council, 1999.

Efforts to Control Noise Pollution[26]

The need for NMFS action on acoustic matters was first identified in 1987, when it was determined that the intense sounds from an acoustic source could potentially harass marine mammals and was therefore subject to the take provisions of the MMPA. Soon thereafter, the NMFS Office of Protected Resources began receiving increasing numbers of requests for authorizations to take marine mammals from activities that produced noise. Two of the projects, the *John Paul Jones* ship shock trial and the ATOC (Acoustic Thermometry of Ocean Climate) project, were highly contentious. By the mid-1990s, NMFS saw a clear need for a coordinated program on this growing issue. Accordingly, in 1995, the agency formed the NMFS Acoustics Program.

Initially, the primary function of the acoustics program was the review and processing of MMPA small take authorizations for permit requests involving acoustic issues. These efforts, however, quickly became insufficient to manage this growing area of concern, and in 1998, the NMFS Office of Protected Resources convened a workshop of experts to review NMFS' acoustic policy. This workshop produced a number of recommendations, including:

- draft acoustic criteria to clearly define acoustic "takes" under the MMPA;
- construct a network for monitoring ocean noise on a global basis;
- provide contact with other agencies, industry, professional societies, environmental NGOs, and news media on acoustic matters;
- outline research that is needed to improve guidelines or regulations on acoustics; and
- obtain additional funding for all programmatic aspects of the acoustics program, including research.

[26] For more information, see the NMFS Acoustics Program at http://www.nmfs.noaa.gov/prot_res/PR2/Acoustics_Program/acoustics.html.

Elements of the NMFS Acoustics Program are being integrated into the small take program, scientific research permits, and other NMFS protected species programmatic responsibilities and functions. Additionally:

- The NMFS Acoustics Program, in cooperation with the Marine Mammal Commission and a number of partners from the scientific research, conservation, and aquarium communities, launched a nationwide public lecture tour to increase public knowledge about human-generated noise and marine animals. This educational lecture series, entitled "Marine Animals and Human Noise," ran from March through November of 2004.

- In 2004, the NMFS Acoustics Program, with the cooperation of a number of governmental and industry co-partners, hosted the 1st International Symposium on "Shipping Noise and Marine Mammals."

- The NMFS Acoustics Program is actively participating in an international effort to standardize acoustic practices in offshore petroleum exploration activities.

9.4.1.6 Climate Change

Impacts

Human induced climate change, caused by increasing greenhouse gas concentrations, has the potential to introduce additional pressures on Atlantic large whales. Key changes that may accompany global warming include increased precipitation, increased ocean temperature, decreased sea ice coverage, and increases and decreases in salinity. Climate change effects of this nature have the potential to influence many aspects of an ecosystem, including habitats, food webs, and species interactions.

A number of studies review and discuss the likely impacts of global climate change on cetaceans, marine mammals, and marine environments in general. Evaluations of the direct effects of climate change on whales are generally confined to cetaceans in the Arctic and Antarctic regions, where the impacts of climate change are expected to be the strongest.[27] It is possible, however, that the indirect effects of climate change on prey availability and cetacean habitat will be more widespread, and could affect large whales in the ALWTRP action area. For example, climate change could exacerbate existing stresses on fish stocks that are already overfished and indirectly affect prey availability for large whale species. Increasing temperature could alter ocean upwelling patterns, fostering increased blooms of dinoflagellates that produce biotoxins. Also associated with higher temperatures is increased precipitation, which could result in more pollutant runoff to coastal waters, elevating cetacean exposure to chemical contaminants.

[27] For example, a doubling of greenhouse gases from pre-industrial times could reduce sea ice in the Southern Hemisphere by more than 40 percent. This could produce adverse effects on the abundance of krill, the primary source of food for whales in this area.

Habitat shifts are another possible implication of climate change. Walther et al. (2002) examined recent shifts of marine communities in response to rising water temperatures, concluding that most cetaceans will experience roughly poleward shifts in prey distributions (Walther et al., 2002). Distributional habitat shifts may also occur at the local level, but these are highly dependent on complex local attributes, as well as ocean current and weather patterns. Baleen whales are highly mobile species, migrating annually from food-rich areas at high latitudes to breeding areas at low latitudes. It is postulated that baleen whales use currents, salinity, and temperature cues to locate regions of high prey abundance and thus may be less affected by climatic habitat shifts than by a general reduction in prey availability.[28] Nevertheless, any general depression of high latitude prey production and/or poleward shift of feeding grounds could place additional stress on migrating whales. For some whale species, these small changes may have little material effect, but for species already vulnerable because of severe existing problems, like the North Atlantic right whale, these changes could be significant obstacles to species survival. A recent review of the period in the 1990s when the calving interval increased at the same time that survival rate of adult female right whales decreased showed a correspondence with reduced abundance of the copepod *Calanus finmarchicus* (Kenney 2007). While more research needs to be done on the effects of the ongoing atmospheric and oceanographic variations on right whales, it should be noted that this species has adapted to substantial environmental changes over the course of time (Kenney 2007).

Efforts to Address Climate Change

Governments and the scientific community are pursuing research to better understand and mitigate the risks associated with climate change. Many cities and states across the U.S. have prepared greenhouse gas inventories and many are actively pursuing programs and policies that will result in greenhouse gas emission reductions.

At the national level, the U.S. Global Change Research Program coordinates the world's most extensive research effort on climate change. In addition, EPA and other Federal agencies are actively engaging the private sector, states, and localities in partnerships aimed at addressing the challenge of global warming while, at the same time, strengthening the economy.[29]

At the global level, countries have expressed a commitment to strengthening international responses to the risks of climate change, resulting in emission reduction agreements such as the Kyoto Protocol. The U.S. is working to strengthen international action and broaden participation under the auspices of the United Nations Framework Convention on Climate Change.

[28] Evidence suggests a strong relationship between right whale distribution and threshold densities of calanoid copepods (Finzi et al., 1999). For example, right whales do not appear to use Cape Cod Bay as a foraging grounds unless the densities of copepods are above a certain minima (Kenney et al., 2001).

[29] For more information, see the US Climate Action Report (U.S. Department of State, 2002).

9.4.1.7 Prey Availability

Impacts

Since the distribution of Atlantic large whales overlaps with many fishing areas, it is possible that whales may be affected by prey availability or competition for prey with fishing activities. For humpback whales, "competition for resources with humans" was identified as a potential impact to this species in the Humpback Whale Recovery Plan (1991). Humpback whales are known to feed on fish species that are directly harvested by humans. In addition, these whales feed on species that are prey for harvested fish. However, information on the magnitude and extent of these potential interactions is not available.

The Biological Opinion addressing the potential effects of the Federal Atlantic herring fishery management plan on threatened and endangered species (1999) outlined potential effects of competition with the herring fishery on Atlantic large whales, in particular humpback and fin whales. Right whales, by feeding primarily on copepods, may be affected by the abundance of small schooling fishes, such as herring, mackerel, and sand lance, which feed on some of the same prey items as right whales. Experts at the 1999 IWC workshop pointed out that since *Calanus* sp. is the most common zooplankton in the North Atlantic and current right whale abundance is greatly below historical levels, food limitations do not seem to be a significant factor (Best et al., 2001). However, the abundance of small schooling fishes may directly affect and be affected by humpback and fin whales. Observations have been made of humpback whales in the vicinity of herring purse seine vessels on Jeffreys Ledge during the summer from 1992 through 1994 (Weinrich et al., 1997). Also, observers deployed in a study conducted in 1997 and 1998 by the Maine Department of Marine Resources reported sightings of fin, humpback, and minke whales in the vicinity of herring operations.

Humpback whale distribution in New England waters is largely correlated with prey species and abundance, along with other factors such as behavior and bottom topography (Waring et al., 2006). These whales usually feed on herring, sand lance, and other small fishes, but in the northern Gulf of Maine, euphausiids are taken as well. In the mid-1970's, commercial depletion of herring and mackerel in the southwestern Gulf of Maine led to an increase in sand lance with a concurrent decrease in humpback whale abundance in the northern Gulf of Maine (Waring et al., 2006). Humpback distribution during the 1970s and 1980s seemed to have shifted away from the northern Gulf of Maine toward the sandy shoals in the southwestern Gulf of Maine. A reversal began in the mid-1980s, when the herring and mackerel populations increased, with a subsequent decrease in sand lance. During 1992 and 1993, humpback abundance rose dramatically in the northern offshore Gulf of Maine (Cultivator Shoal, Northeast Peak of Georges Bank, and Jeffreys Ledge), accompanied by a major influx of herring. These areas are traditional locations of herring occurrence. In 1996 and 1997, both sand lance and humpback whales were abundant again in the Stellwagen Bank area. However, herring populations remained relatively abundant, rather than decreasing as they had in the past. Therefore, humpback whales continued to occupy that area (Waring et al 2006). These data suggest that the distribution of humpback whales is affected by prey availability; they also show that the whales are able to shift prey species when abundance of a particular prey item decreases.

Efforts to Address Prey Availability

Currently, the effect of prey availability and competition for resources between Atlantic large whales and fishing operations is not known to be affecting the status of these whales. In the case of humpback whales, local stocks are known to utilize alternative prey sources. The current and future regulations to control fishing through the Atlantic herring fishery management plan (FMP) may alleviate potential problems associated with limitations on prey availability. Currently, herring are not overfished and overfishing is not occurring. Amendment 1 to the Atlantic herring FMP seeks to develop alternatives to implement a management program that improves resource conservation and management, eliminate the potential for harvesting capacity to increase above the resource capacity, and provide a platform for economic stability for harvesters, processors, and fishing communities (NEFMC, 2004a).

9.4.1.8 Summary of Factors Affecting Atlantic Large Whale Survival

As described above, the status of large whales in the North Atlantic has been and continues to be affected by a number of anthropogenic risk factors. Exhibit 9-7 summarizes the factors that may adversely affect Atlantic large whale stocks, the past, present, and reasonably foreseeable future actions taken to address each risk factor, and the overall effect of these actions.

Exhibit 9-7

SUMMARY OF FACTORS AFFECTING ATLANTIC LARGE WHALES

Risk Factor	Degree of Certainty	Current Magnitude of Impact	Major Past, Present, and Reasonably Foreseeable Future Actions (PPRFFAs)	Effect of PPRFFAs
Whaling	Known	Low to High[1] (depending on species)	International bans on whaling were implemented in 1935 for right whales; in 1955 for humpback whales; and in 1986 for fin whales and minke whales (although some nations continue whaling of fin and minke whales).	Reduced whaling
Entanglement	Known	High	The initial ALWTRP went into effect in 1997 as an Interim Final Rule. This rule was updated in February 1999, December 2000, January 2002, August 2003, and October 2008. Additional non-regulatory initiatives include gear research and development; the disentanglement network; and the right whale sighting advisory system.	Reduced entanglement risk
Ship Strikes	Known	High	The Mandatory Ship Reporting System was implemented in July 1999 to provide real-time right whale sighting information to vessel operators. In 1994, NMFS convened a Ship Strike Committee which submitted its recommendations to NMFS in 2001. NMFS published a proposed Strategy to Reduce Ship Strikes of Right Whales (71 FR 36299; 71 FR 46440) to solicit comments on proposed operational measures for the shipping industry contained within the Strategy. In addition, in 2006, NMFS proposed a modification to the Boston Traffic Separation Scheme; the IMO has adopted this proposal.	Reduced mortality and injury from ship strikes
Water Pollution	Suspected	Uncertain	Regulations exist to control water pollution at both the national and international level, including the CWA, CZMA, MPRSA, OPA, and the MARPOL 73/78 Convention.	Positive; however, the direct effect is uncertain.
Noise Pollution	Suspected	Moderate	In 1995, NMFS formed the Acoustics Program to coordinate and integrate NMFS acoustics policy with the small take program, scientific research permits, and other NMFS protected species programmatic functions.	Positive; however, the direct effect is uncertain.
Climate Change	Uncertain	Uncertain	International emissions reduction treaties; extensive research effort on climate change.	Positive; however, the direct effect is uncertain.
Prey Availability	Uncertain	Uncertain	FMP actions to ensure sustainable harvest and prevent overfishing of herring and mackerel.	Positive; however, the direct effect is uncertain.

Notes:
[1] Based on the lack of information on the minke and fin whale populations off of Greenland, including the status of these populations, the takes of these species in this area are considered moderate to high. The IWC has expressed concern that safe catch limits for these populations are not currently available.

Exhibit 9-8 draws on the information presented in this section, and on the entanglement data presented in Chapter 2, to compare the recent impact of different risk factors on fatalities of right, humpback, fin, and minke whales. The exhibit focuses on known fatalities from 2005 through 2009. As the exhibit indicates, the impact of water pollution, noise pollution, climate change, or prey availability on whale mortality is unknown.[30]

With respect to known causes of whale mortality, the relative importance of ship strikes and entanglements may vary by species. In general, inadequacies in the available data (e.g., small sample size, lack of information on the ultimate fate of entangled animals, unequal probabilities of sighting entangled versus ship struck animals, etc.) prevent determining which of these factors is more important. In the case of right whales, entanglements and ship strikes remain of equal concern. In the case of humpback whales, however, the available data for the period 2006 through 2010 suggest a higher number of fishing gear interactions than ship strikes. Waring et al. (2013) reported that during this period, the total estimated human-caused mortality and serious injury to the Gulf of Maine humpback whale stock was 7.8 per year (U.S. waters, 7.2; Canadian waters, 0.6). This average was derived from two components: incidental fishery interaction records at 5.8 per year (U.S. waters, 5.2; Canadian waters, 0.6), and records of vessel collisions at 2.0 per year (U.S. waters, 2.0; Canadian waters, 0).

Fin whales, on the other hand, had a greater incidence of ship strike mortalities than fishery interactions. A review of NMFS records from 2005 through 2009 yielded an estimated average of 2.6 human-caused mortalities per year (U.S. waters, 2.0; Canadian waters, 0.6). This value includes 0.8 per year resulting from fishery interactions (U.S. waters, 0.6; Canadian waters, 0.2) and 1.8 per year resulting from vessel collisions (U.S. waters, 1.4; Canadian waters, 0.4) (Waring et al., 2012).

Minke whales, like humpback whales, exhibited a higher incidence of fishery interactions than ship strikes for the period 2005 through 2009; during this period, the total average annual human-caused mortality in U.S. waters was estimated as 5.9 minke whales per year. This value includes 3.5 (CV=0.34) minke whales per year from observed US fisheries, 0.8 minke whales per year (unknown CV) from U.S. fisheries using strandings and entanglement data, 1.2 (unknown CV) from Canadian fisheries using strandings and entanglement data, and 0.4 per year from U.S. ship strikes (Waring et al. 2012). These data suggest that the anthropogenic risk factors that are known to cause serious injury or mortality to large whales may vary by species. All interpretations of the data, however, should consider the uncertainties noted above.

[30] There are no known deaths of large whales in North Atlantic waters associated with noise pollution.

Exhibit 9-8

KNOWN FATALITIES BY SPECIES AND CAUSE: 2005-2009

Cause	Right Whales	Humpback Whales	Fin Whales	Minke Whales
Commercial or Subsistence Whaling	0	7	192	3,782
Ship Strike	6	7	9	2
Entanglement	2	6	2	7
Water Pollution	N.A.	N.A.	N.A.	N.A.
Noise Pollution	N.A.	N.A.	N.A.	N.A.
Climate Change	N.A.	N.A.	N.A.	N.A.
Prey Availability	N.A.	N.A.	N.A.	N.A.

KEY:
N.A. = Not available

Sources: Waring et al., 2012; IWC 2012.

Exhibit 9-8 makes clear that interaction with commercial fishing gear is not the only anthropogenic risk factor faced by right, humpback, fin, or minke whales. It does not, however, suggest that efforts to reduce the risks associated with gear entanglements are unwarranted or unnecessary. As described in Chapter 2, the depleted status of right, humpback, and fin whale stocks means that the premature death or serious injury of even a few individuals each year can threaten a species' survival. In light of these circumstances, efforts to preserve Atlantic large whale species must take all risk factors into account, including those associated with commercial fishing activity. While the requirements of the ALWTRP and the regulatory alternatives under consideration focus solely on entanglement risks, the commercial fishing regulations developed under the plan are but one dimension of a multi-faceted effort to address the full range of threats to endangered whale species.

9.4.2 Other Protected Species

Chapter 4 identifies several other species, protected either by the ESA of 1973 or the MMPA of 1972, whose range may overlap with ALWTRP regulated fisheries. Chapter 5 assesses the impacts on these species that could result from adoption of the ALWTRP management alternatives. Some of the other protected species, such as the shortnose sturgeon, the Gulf of Maine distinct population segment of Atlantic salmon, roseate terns, and piping plovers, are minimally affected by the commercial fishing operations that are regulated under the ALWTRP and therefore are not addressed by the cumulative effects analysis.

The following section provides a broad discussion of the major threats faced by each of the protected species potentially affected by the ALWTRP, followed by a summary of the significant actions (past, present, and reasonably foreseeable future) taken to mitigate these risks.

The species of interest include:

Whales	
Blue Whale	Endangered
Sei Whale	Endangered
Sperm Whale	Endangered
Porpoises and Dolphins	
Harbor Porpoise (Gulf of Maine/Bay of Fundy Stock)	Protected
Western North Atlantic Coastal Bottlenose Dolphin	Protected
Atlantic White-Sided Dolphin	Protected
Risso's Dolphin	Protected
Spotted Dolphin	Protected
Striped Dolphin	Protected
Pilot Whale	Protected
Western North Atlantic Offshore Bottlenose Dolphin	Protected
Common Dolphin	Protected
Seals	
Harbor Seal	Protected
Gray Seal	Protected
Harp Seal	Protected
Sea Turtles	
Kemp's Ridley Sea Turtle	Endangered
Loggerhead Sea Turtle	Threatened
Leatherback Sea Turtle	Endangered
Green Sea Turtle	Endangered
Hawksbill Sea Turtle	Endangered
Olive Ridley Sea Turtle	Threatened

9.4.2.1 Whales

Blue Whale

Only one subspecies of blue whale, *B. musculus,* occurs in the northern hemisphere. In the North Atlantic, blue whales range from the subtropics to Baffin Bay and the Greenland Sea, but they are only occasional visitors to east coast U.S. waters. They are more commonly found in Canadian waters, particularly the Gulf of St. Lawrence, where they are present for most of the year, and in other areas of the North Atlantic.

Though once hunted intensively, blue whales were given complete protection in the North Atlantic in 1955 under the International Convention for the Regulation of Whaling. Photo-identification studies of blue whales in the Gulf of St. Lawrence from 1979 to 1995 identified 320 individual whales. NMFS recognizes a minimum population estimate of 440 blue whales within the Northeast Region (Waring et al., 2010).

There is limited information on the factors affecting natural mortality of blue whales in the North Atlantic. Ice entrapment is known to kill and seriously injure some blue whales during late winter and early spring, particularly along the southwest coast of Newfoundland. Habitat degradation has been suggested as possibly affecting blue whales in the Gulf of St. Lawrence, where habitat has been degraded by acoustic and chemical pollution. However, there are no data to confirm that blue whales have been affected by such habitat changes (Perry et al., 1999).

Ship strikes and entanglements in commercial fishing gear are believed to be the major sources of anthropogenic mortality and injury of blue whales; however, confirmed deaths or serious injuries are few. Thus, human-related interactions are not deemed to be a major source of mortality for this species at this time. To the extent that blue whales are present in waters affected by ALWTRP-regulated gear, they are expected to experience the same benefits from gear modifications required by the ALWTRP as the large whale species these modifications were designed to protect.

Sei Whale

The Nova Scotian Shelf stock of sei whales, which includes the continental shelf waters of the Northeast Region and extends northeastward to south of Newfoundland, is the only sei whale stock within ALWTRP boundaries. Sei whales typically occur in deep water. In the northwest Atlantic, the whales travel along the eastern Canadian coast in autumn on their way to the Gulf of Maine and Georges Bank, where they occur in winter and spring. Within the Northeast Region, the sei whale is most common on Georges Bank, including the Great South Channel, and into the Gulf of Maine/Bay of Fundy region during spring and summer. There are insufficient data to determine trends in the sei whale population. A minimum population estimate for this stock is 208 animals (Waring et al., 2010).

Possible causes of natural mortality for sei whales, particularly for young, old, or otherwise compromised individuals, are shark attacks, killer whale attacks, and endoparasitic helminthes (Perry et al., 1999). Few instances of injury or mortality of sei whales due to entanglement or vessel strikes have been recorded in U.S. waters. Thus, human-related interactions are not deemed to be a major source of mortality for this species at this time. To the extent that sei whales are present in waters affected by ALWTRP-regulated gear, they are expected to experience the same benefits from gear modifications required by the ALWTRP as the large whale species these gear modifications were designed to protect.

Sperm Whale

In the western North Atlantic, sperm whales range from Greenland to the Gulf of Mexico and the Caribbean and generally occur in waters greater than 180 meters in depth (Leatherwood and Reeves, 1983). Though hunted extensively world-wide until the late 1900s, all killing of sperm whales was banned by the IWC in 1988. The IWC recognizes one stock for the entire North Atlantic. The best estimate of abundance for this stock of sperm whales is 4,804 (CV=0.38) (Waring et al., 2007).

Little information is available about the natural mortality of sperm whales, and though entanglements and ship strikes of this species have been known to occur occasionally, few instances of injury or mortality due to human impacts have been recorded in U.S. waters.

The North Atlantic stock of sperm whales was included for discussion when the Atlantic Offshore Cetacean Take Reduction Team (AOCTRT) was formed in 1996 to address the interaction of marine mammals with Highly Migratory Species (HMS) pelagic longline, pair trawl, and pelagic driftnet fisheries for Atlantic tunas, sharks, and swordfish. A draft plan to reduce takes resulting from these types of gear was submitted, and though it was not finalized, several protective measures have been implemented for these fisheries. Since the AOCTRT last met in 1996, NMFS has prohibited the use of pair trawls and swordfish driftnets in Atlantic pelagic fisheries, and implemented other AOCTRT recommendations for the pelagic longline and shark gillnet fisheries through the HMS FMP.

At this time, fishery-related interactions are not deemed to be a major source of mortality for this species. To the extent that sperm whales are present in waters affected by ALWTRP-regulated gear, they are expected to experience the same benefits from gear modifications required by the ALWTRP as the large whale species these gear modifications were designed to protect.

It has been suggested that another potential human-caused source of mortality for sperm whales may be the accumulation of stable pollutants such as polychlorinated biphenyls (PCBs), chlorinated pesticides, polycyclic aromatic hydrocarbons, and heavy metals. Though not conclusively caused by contaminant burden, tissue samples from 21 sperm whales involved in a mass stranding in the North Sea in 1994/95 showed cadmium levels twice as high as those found in North Pacific sperm whales, possibly affecting the stranded animals' health and behavior (Holsbeek, et al. 1999).

9.4.2.2 Harbor Porpoise

Harbor porpoises can be found in continental shelf waters throughout the ALWTRP action area, from southern Florida to the Gulf of Maine and Bay of Fundy. The Gulf of Maine/Bay of Fundy stock is categorized as a strategic stock under the MMPA. The best estimate of abundance for this stock is 89,054 (CV=0.47), with a minimum population estimate of 60,970 (Waring et al., 2012). There is little known about the natural causes of mortality for this species.

Fishery interactions with the Northeast and Mid-Atlantic gillnet fisheries are the primary anthropogenic hazard faced by this species. Harbor porpoises have been taken incidentally in sink gillnets since the 1960s, when a sink gillnet fishery for groundfish was developed in the Bay of Fundy, Canada.[31] Similar fisheries developed along the New England coast in the 1970s. Before 1998, most of the harbor porpoise takes from U.S. commercial fisheries originated from the Northeast sink gillnet fishery. An investigation conducted in 1984 estimated that a maximum

[31] The reference to sink gillnets here is assumed to meet the ALWTRP definition of an anchored net.

of 600 harbor porpoises were killed annually in this fishery (Gilbert and Wynne, 1985, 1987). In 1990, NMFS initiated an observer program to investigate marine mammal takes in the Northeast sink gillnet fishery. Observers reported 454 harbor porpoise mortalities related to this fishery between 1990 and 2001. Between 1994 and 1998 (i.e., before implementation of the Harbor Porpoise Take Reduction Plan (HPTRP)), the average annual mortality and serious injury estimate for harbor porpoise in the Northeast sink gillnet fishery was 1,163 (Waring et al., 2003).

The Mid-Atlantic coastal gillnet fishery, which extends from North Carolina to New York, consists of a combination of small vessels that target a variety of fish species. An observer program for this fishery began in 1993. There were no observed harbor porpoise takes in this fishery between 1993 and 1994, but from 1995 through 1998 (i.e., before implementation of the HPTRP), the average annual mortality and serious injury estimate for harbor porpoise was 358 (Waring et al., 2003).

During 1993, 73 harbor porpoises were reported stranded on beaches from Maine to North Carolina. Many of the carcasses recovered in the Mid-Atlantic during this period had cuts and body damage suggestive of net markings (Haley and Read, 1993). Between 1994 and 1996, 107 harbor porpoise carcasses were recovered from beaches in Maryland, Virginia, and North Carolina. Only juvenile harbor porpoises were present in this sample. Of the 40 harbor porpoises for which the cause of death could be determined, 25 displayed definitive evidence of entanglement in fishing gear. In four cases, it was possible to determine that the animal was entangled in monofilament nets (Cox et al., 1998).

Over half of the 228 harbor porpoise strandings recorded in 1999 occurred on beaches in Massachusetts and North Carolina. Virginia, New Jersey, and Maryland had the next greatest numbers of strandings, respectively. The cause of death was investigated for all harbor porpoise strandings in 1999, and 38 individuals were determined to have died as a result of an interaction with fishing gear. During 2000, only 27 harbor porpoises stranded on beaches from Maine to North Carolina. Most of these occurred in Massachusetts (8) and North Carolina (6). During 2001, 113 harbor porpoises were reported stranded, and most of these occurred in Massachusetts (39), Virginia (28), and North Carolina (21). Thirteen of these strandings displayed signs of fishery interactions (Waring et al., 2003).

Harbor Porpoise Take Reduction Plan (HPTRP)

To address the high levels of incidental take of harbor porpoise in the groundfish sink gillnet fishery, a Take Reduction Team was formed in 1996. A rule (63 FR 66464) to reduce harbor porpoise bycatch in U.S. Atlantic gillnets was published on December 1, 1998, and became effective on January 1, 1999 (63 FR 71041) and was amended on February 19, 2010 (75 FR 7383). Since gillnet operations differ between the New England and Mid-Atlantic regions, two sets of measures were devised. The New England portion of the plan pertains to all fishing with sink gillnets and other gillnets capable of catching multispecies in New England waters from Maine through Rhode Island. This portion of the rule includes time and area closures, some of which are complete closures. Other fisheries are closed to multispecies gillnet fishing unless pingers (sound-making devices) are used in the manner prescribed in the Take Reduction Plan regulations. The Mid-Atlantic portion of the plan pertains to the Mid-Atlantic

shoreline from New York to North Carolina. This portion of the rule also includes gear modifications and time and area closures to mitigate the incidental take of harbor porpoise.

9.4.2.3 Dolphins

Western North Atlantic Coastal Bottlenose Dolphin

Coastal bottlenose dolphins can also be found in continental shelf waters throughout the ALWTRP action area, from southern Florida to the Gulf of Maine and Bay of Fundy. The western North Atlantic stock is categorized as strategic under the MMPA. This stock structure was revised in 2002 to recognize both multiple stocks and seasonal management units and again in 2008 and 2009 to recognize resident estuarine stocks and migratory and resident coastal stocks.

Fishery interactions with the Northeast and Mid-Atlantic gillnet fisheries are the primary anthropogenic hazard faced by this species. Western North Atlantic (WNA) coastal bottlenose dolphins are known to interact with commercial fisheries and occasionally are taken in various kinds of fishing gear, including gillnets, seines, longlines, hook and line, shrimp trawls, and crab traps/pots. Interactions are especially common in near-shore areas where dolphin densities and fishing effort are greatest.

The western North Atlantic stock of bottlenose dolphins was included for discussion when the Atlantic Offshore Cetacean Take Reduction Team (AOCTRT) was formed in 1996 to address the interaction of marine mammals with Highly Migratory Species (HMS) pelagic longline, pair trawl, and pelagic driftnet fisheries for Atlantic tunas, sharks, and swordfish. A draft plan to reduce takes associated with these types of gear was submitted, and though it was not finalized, several protective measures have been implemented for these fisheries. Since the AOCTRT last met in 1996, NMFS has prohibited the use of pair trawls and swordfish driftnets in Atlantic pelagic fisheries. In addition, through the HMS FMP, NMFS has implemented other AOCTRT recommendations for the pelagic longline and shark gillnet fisheries.

The MMPA List of Fisheries (LOF) currently designates eleven Category I and II commercial fisheries in the Atlantic that interact with western North Atlantic coastal bottlenose dolphins, several of which fall under the provisions of the ALWTRP: the Mid-Atlantic coastal gillnet, Southeast Atlantic gillnet, and Southeastern U.S. Atlantic shark gillnet fisheries.

Of the fisheries noted above, the Mid-Atlantic coastal gillnet fishery accounts for the highest documented level of mortality or serious injury of WNA coastal bottlenose dolphins. Within this fishery, the North Carolina sink gillnet fishery accounts for the greatest number of observed takes. Bycatch estimates for this fishery are available for 1996 to 2000. Of 12 observed mortalities from 1995 to 2000, five occurred in sets targeting spiny or smooth dogfish and another in a set targeting shark species; two occurred in striped bass sets; two occurred in Spanish mackerel sets; and the remainder were in sets targeting kingfish, weakfish, or finfish generically (Rossman and Palka, 2001).

The shark gillnet fishery in the Southeast overlaps with the Georgia, Northern Florida, and Central Florida management units of the WNA coastal bottlenose dolphin stock complex. The shark gillnet fishery operates in Federal waters from southern Florida to southern Georgia. The fishery is characterized by vessels using relatively large mesh nets (less than ten inches) and net lengths typically greater than 1500 feet. The fishery primarily uses drifting nets that are set overnight; recently, however, it has begun employing a small number of shorter duration "strike" sets that encircle targeted schools of sharks. During an observer program in 1993 and 1994 and limited observer coverage during the summer of 1998, no takes of bottlenose dolphin were observed (Trent et al., 1997; Carlson and Lee, 2000). However, takes resulting in mortality were observed in the central Florida management unit during 1999 and 2000 (Garrison, 2003).

Trap/pot gear used in several Atlantic fisheries poses another significant threat to bottlenose dolphins. Between 1994 and 1998, 22 bottlenose dolphin carcasses recovered by the Stranding Network between North Carolina and Florida's Atlantic coast displayed evidence of possible interaction with a trap/pot fishery (i.e., rope and/or pots attached, rope marks). Additionally, at least five dolphins were reported to be released alive (condition unknown) from blue crab traps/pots during this time period (Waring et al., 2002). In recent years, reports of strandings with evidence of interactions between bottlenose dolphins and both recreational and commercial crab trap/pot fisheries have been increasing in the Southeast Region (McFee and Brooks, 1998). The increase in reports of such strandings may result from increased effort towards documenting these marks or from underlying increases in mortality.

Bottlenose dolphins are also susceptible to mortality from sources other than the direct result of anthropogenic interactions. From 1997 to 1999, 995 bottlenose dolphins were reported stranded along the Atlantic coast from New York to Florida (Hohn and Martone, 2001; Hohn et al., 2001; Palka et al., 2001). Of these, it was possible to determine whether a human interaction had occurred for 449 (45 percent); it was not possible to determine whether human interactions were involved for the remainder of the stranded animals. An overall average of 34 percent of stranded carcasses were determined to have been involved in a human interaction, but ranged widely from 11 to 12 percent in Delaware and Georgia to 49 and 53 percent in Virginia and North Carolina, respectively.

There are no estimates of indirect human-caused mortality resulting from pollution or habitat degradation. From 1987 to 1988, the WNA coastal bottlenose dolphin population experienced a massive die-off. During the 11-month epidemic, it was estimated that over half of the population died. Possible sources of the event include brevetoxin produced by red tide organisms, environmental contaminants, or natural diseases. The blubber of the stranded dolphins examined from the event contained anthropogenic contaminants in levels among the highest recorded for a cetacean (Geraci, 1989).

In April 2006, NMFS published a final rule to implement the Take Reduction Plan for the WNA coastal stock of bottlenose dolphin (April 26, 2006, 71 FR 24776) to reduce the incidental mortality and serious injury in the Mid-Atlantic gillnet fishery and eight other coastal fisheries operating within the dolphin's distributional range. The other Atlantic coastal fisheries include the North Carolina inshore gillnet fishery, Southeast Atlantic gillnet fishery, Atlantic blue crab trap/pot fishery, Mid-Atlantic haul/beach seine fishery, North Carolina long haul seine fishery, North Carolina roe mullet stop net fishery, Southeastern U.S. Atlantic shark gillnet fishery, and

the Virginia pound net fishery (NMFS, 2002c). The final rule also revised the large mesh size restriction under the Mid-Atlantic large mesh gillnet rule for conservation of endangered and threatened sea turtles to provide consistency among Federal and state management measures. The Plan was amended on July 31, 2012 (77 FR 45268) to permanently continuing nighttime fishing restrictions of medium mesh gillnets operating in North Carolina coastal state waters. The measures contained in the Plan include gillnet effort reduction, gear proximity requirements, gear or gear deployment modifications, and outreach and educational measures to reduce dolphin bycatch below the marine mammals stock's potential biological removal level (PBR).

Atlantic White-Sided Dolphin

The Gulf of Maine stock of Atlantic white-sided dolphins is commonly found in continental shelf waters from Hudson Canyon to Georges Bank and from the Gulf of Maine to the Bay of Fundy. The best estimate of abundance for the Gulf of Maine white-sided dolphin stock is 23,390 (CV=0.23), and the minimum estimate is 19,019 (Waring et al., 2012).

There is little information available about the natural causes of mortality for this species. Atlantic white-sided dolphins have become entangled in the Northeast sink gillnet, Mid-Atlantic coastal gillnet, pelagic drift gillnet, North Atlantic bottom trawl, and Atlantic squid, mackerel, and butterfish trawl fisheries. The Northeast sink gillnet and the Mid-Atlantic coastal gillnet fisheries are currently regulated under the ALWTRP.

Risso's Dolphin

The western North Atlantic stock of Risso's dolphins occurs along the continental shelf from Cape Hatteras to Georges Bank. Based on limited survey estimates in U.S. waters, the best estimate of this stock of Risso's dolphins is 20,479, and the minimum estimate is 12,920 (Waring et al., 2012).

According to observer records from 2005-2009, this species has been observed as bycatch in the pelagic drift gillnet, pelagic longline, pelagic pair trawl, and the Northeast multispecies sink gillnet fisheries. Between 1996 and 2000, the estimated mean mortality of Risso's dolphins taken in the pelagic longline fishery was eight and was three for the Northeast multispecies sink gillnet fishery (Waring et al., 2012). The Northeast sink gillnet fishery is currently regulated under the ALWTRP.

To address levels of Risso's dolphin bycatch in the pelagic longline fishery, NMFS established the Pelagic Longline Take Reduction Team. The team first met in June 2005. NMFS published a proposed rule on June 24, 2008 (73 FR 35623) and a final rule on May 19, 2009 (74 FR 23349), effective June 18, 2009. The plan consists of both regulatory and nonregulatory measures, including a special research area, gear modifications, outreach material, observer coverage, and captains' communications.

Pelagic Delphinids (Spotted Dolphin, Striped Dolphin, Pilot Whale, Western North Atlantic Offshore Bottlenose Dolphin, Common Dolphin)

The pelagic delphinid complex is made up of small odontocete species that are broadly distributed along the edge of the continental shelf, where depths range from 200 - 400 meters. These species include the western North Atlantic stock of spotted dolphins, western North Atlantic stock of striped dolphins, western North Atlantic stock of pilot whales, the western North Atlantic offshore stock of bottlenose dolphins, and the western North Atlantic stock of common dolphins.

Spotted Dolphin

Atlantic and pantropical spotted dolphins are difficult to differentiate at sea. Atlantic spotted dolphins are distributed from southern New England south through the Gulf of Mexico and the Caribbean to Venezuela (Waring et al., 2000). Pantropical spotted dolphins are distributed worldwide in tropical and some sub-tropical oceans, occur in the Gulf of Mexico in all seasons, and also occur between Nova Scotia and Florida (Waring et al., 2002). Both species are commonly found in large groups and are known to feed on a variety of prey, including small-to-large epipelagic and mesopelagic fishes and squids, and benthic invertebrates (Perrin et al., 2002).

The best estimate of abundance for Atlantic spotted dolphins is 50,978 and the minimum population estimate for this stock is 36,235 (Waring et al., 2007). The best estimate of abundance for pantropical spotted dolphins is 4,439; the minimum population estimate for this stock is 3,010 (Waring et al., 2007). There is little information available about the natural mortality of these two species.

Bycatch of spotted dolphins has been observed by NMFS Sea Samplers in the pelagic drift gillnet and pelagic longline fisheries. The western North Atlantic stock of spotted dolphins (both species) was included for discussion when the Atlantic Offshore Cetacean Take Reduction Team (AOCTRT) was formed in 1996 to address the interaction of marine mammals with Highly Migratory Species (HMS) pelagic longline, pair trawl, and pelagic driftnet fisheries for Atlantic tunas, sharks, and swordfish. A draft plan to reduce takes resulting from these types of gear was submitted, and though it was not finalized, several protective measures have been implemented for these fisheries. Since the AOCTRT last met in 1996, NMFS has prohibited the use of pair trawls and swordfish driftnets in Atlantic pelagic fisheries, and implemented other AOCTRT recommendations for the pelagic longline and shark gillnet fisheries through the HMS FMP. The total annual average fishery-related mortality or serious injury to this stock from 2001 through 2005 was estimated as 6 spotted dolphins (undifferentiated between Atlantic and pantropical).

Striped Dolphin

Striped dolphins are found in the western North Atlantic from Nova Scotia south to at least Jamaica, in the Gulf of Mexico, and in general prefer continental slope waters offshore to

the Gulf Stream (Waring et al., 2000). These dolphins, like spotted dolphins, are commonly found in large groups that feed on schools of fish. Striped dolphins feed on a variety of pelagic or benthopelagic fish and squid; in the Northeast Atlantic, they primarily feed on cod (Perrin et al., 2002). The best estimate of abundance for striped dolphins is 94,462; the minimum population estimate for this stock is 68,558 (Waring et al., 2007).

Bycatch of striped dolphins has been observed in low numbers by NMFS Sea Samplers in the pelagic drift gillnet and North Atlantic bottom trawl fisheries, but no mortalities or serious injuries have been documented in the pelagic longline fisheries, pelagic pair trawl, Northeast multispecies sink gillnet, and Mid-Atlantic coastal gillnet fisheries (Waring et al., 2000).[32] The total annual average fishery-related mortality to this stock from 2001-2005 was 0 dolphins.

Pilot Whale

Long- and short-finned pilot whales are found in the Gulf Stream and continental shelf and slope waters. The best estimate of abundance for the long-finned pilot whale species is 12,619; the minimum estimate is 9,333 (Waring et al., 2012). The best estimate of abundance for the short-finned pilot whale species is 24,674; the minimum estimate is 17,190 (Waring et al., 2012).

Pilot whale bycatch has been observed by NMFS Sea Samplers in the pelagic drift gillnet, pelagic longline, pelagic pair trawl, bluefin tuna purse seine, North Atlantic bottom trawl, Atlantic squid, mackerel, and butterfish trawl, and Mid-Atlantic coastal gillnet fisheries, but no mortalities or serious injuries have been documented in the Northeast multispecies sink gillnet fishery.[33]

The western North Atlantic stock of pilot whales (both long- and short-finned) was included for discussion when the Atlantic Offshore Cetacean Take Reduction Team (AOCTRT) was formed in 1996 to address the interaction of marine mammals with Highly Migratory Species (HMS) pelagic longline, pair trawl, and pelagic driftnet fisheries for Atlantic tunas, sharks, and swordfish. A draft plan to reduce takes resulting from these gear types was submitted, and though it was not finalized, several protective measures have been implemented for these fisheries. Since the AOCTRT met in 1996, NMFS has prohibited the use of pair trawls and swordfish driftnets in Atlantic pelagic fisheries, and implemented other AOCTRT recommendations for the pelagic longline and shark gillnet fisheries through the HMS FMP. Since the nature of the fisheries that were included in the Plan has changed tremendously since 1996 when the Team was convened, NMFS disbanded the Team in August 2001.

It is not possible to partition mortality estimates between the 2 species because there are very few available genetic samples from the area of overlap and season where most mortality occurs. Mortality and serious injury estimates are thus presented only for the 2 species combined. Total annual estimated average fishery-related mortality or serious injury during 2005-2009 was

[32] Waring et al. (2000) note that the pelagic drift gillnet and the pelagic pair trawl fisheries no longer exist.

[33] Waring et al. (2003) note that the pelagic drift gillnet and the pelagic pair trawl fisheries no longer exist.

162 pilot whales (CV=0.15). Of this, it is most likely that the mortality due to the pelagic longline fishery, the Northeast midwater trawl fishery, and the Northeast groundfish fishery have the most direct impact on long-finned pilot whales. The Mid-Atlantic coastal gillnet fishery is currently regulated under the ALWTRP. The pelagic longline fishery is currently regulated under the Pelagic Longline Take Reduction Team, and the Northeast midwater trawl fishery is regulated under the Atlantic Trawl Gear Take Reduction Team.

Bycatch data indicate that takes of pilot whales occur in both pelagic longline gear and several Atlantic trawl gear fisheries. Because mortality has been close to PBR, the status of the stock has fluctuated between strategic and non-strategic (Waring et al., 2003). In response, in part, to the problem of interactions between pilot whales and commercial fishing gear, NMFS has formed the Pelagic Longline Take Reduction Team (70 FR 36120); the initial TRT meeting was held on June 29 and 30, 2005. Similarly, NMFS has established the Atlantic Trawl Gear Take Reduction Team; the initial meeting of this group was held on September 19, 20, and 21, 2006 (71 FR 54273).

An additional potential human-caused source of mortality for pilot whales is from polychlorinated biphenyls (PCBs) and chlorinated pesticides, moderate levels of which have been found in pilot whale blubber (Taruski, 1975; Muir et al., 1988; Weisbrod et al., 2000b). In addition, high levels of toxic metals, selenium, and PCBs were measured in pilot whales killed in the Faroe Islands (Nielsen et al., 2000; Dam and Bloch, 2000). The population effect of the observed levels of such contaminants is currently unknown (Waring et al., 2003).

Western North Atlantic Offshore Bottlenose Dolphin

The western North Atlantic offshore stock of bottlenose dolphins (*Tursiops truncatus*) ranges from Florida to Georges Bank along the continental slope. The best estimate of abundance is 70,775. (Waring et al., 2008).

Little information about natural mortality for this species is available. Bottlenose dolphins are among the most frequently stranded small cetaceans along the Atlantic coast. Many of these stranded animals show signs of human interaction, such as net marks and mutilation (Waring et al., 2003).

Offshore bottlenose dolphin bycatch has been observed by NMFS Sea Samplers in the pelagic drift gillnet, pelagic longline, pelagic pair trawl, North Atlantic bottom trawl, Northeast multispecies sink gillnet, and Mid-Atlantic coastal gillnet fisheries.[34] The western North Atlantic stock of offshore bottlenose dolphins was included for discussion when the Atlantic Offshore Cetacean Take Reduction Team (AOCTRT) was formed in 1996 to address the interaction of marine mammals with Highly Migratory Species (HMS) pelagic longline, pair trawl, and pelagic driftnet fisheries for Atlantic tunas, sharks, and swordfish. A draft plan to reduce takes resulting from these gear types was submitted, and though it was not finalized, several protective measures have been implemented for these fisheries. Since the AOCTRT last met in 1996, NMFS has prohibited the use of pair trawls and swordfish driftnets in Atlantic

[34] Waring et al. (2003) note that the pelagic drift gillnet and the pelagic pair trawl fisheries no longer exist.

pelagic fisheries, and implemented other AOCTRT recommendations for the pelagic longline and shark gillnet fisheries through the HMS FMP.

The total annual fishery-related mortality of this stock during 2001-2006 is unknown (Waring et al., 2008).

Common Dolphin

The western North Atlantic stock of common dolphins occurs most frequently north of Cape Hatteras along the continental shelf. The best estimate of western North Atlantic stock abundance is 120,743 common dolphins; the minimum estimate is 99,975 (Waring et al., 2012). Little is known about the natural mortality of this species.

Common dolphin bycatch has been observed by NMFS Sea Samplers in the pelagic drift gillnet, pelagic longline, pelagic pair trawl, North Atlantic bottom trawl, Atlantic squid, mackerel, and butterfish trawl, Northeast multispecies sink gillnet, and Mid-Atlantic coastal gillnet fisheries.[35]

The western North Atlantic stock of common dolphins was included for discussion when the Atlantic Offshore Cetacean Take Reduction Team (AOCTRT) was formed in 1996 to address the interaction of marine mammals with Highly Migratory Species (HMS) pelagic longline, pair trawl, and pelagic driftnet fisheries for Atlantic tunas, sharks, and swordfish. A draft plan to reduce takes resulting from these gear types was submitted, and though it was not finalized, several protective measures have been implemented for these fisheries. Since the AOCTRT met in 1996, NMFS has prohibited the use of pair trawls and swordfish driftnets in Atlantic pelagic fisheries, and implemented other AOCTRT recommendations for the pelagic longline and shark gillnet fisheries through the HMS FMP.

Based on observer data, the estimated annual average fishery-related mortality or serious injury to the western North Atlantic stock attributable to U.S. fisheries was 164 common dolphins from 2005-2009. In the Atlantic pelagic longline fishery between 1990 and 2007, 20 common dolphins were observed hooked and released alive. The 2005-2009 average annual mortality attributed to the northeast sink gillnet was 26 animals. The trawl fisheries (northeast bottom, Mid-Atlantic bottom trawl, Mid-Atlantic mid-water trawl) accounted for 134 mortalities from 2005-2009. Two take reduction teams address the take of common dolphins in these fisheries.

Atlantic Offshore Cetacean Take Reduction Team

Historically, Highly Migratory Species (HMS) fisheries that affect marine mammals include the pelagic longline, pair trawl, and pelagic driftnet fisheries for Atlantic tunas, sharks, and swordfish. In 1996, the Atlantic Offshore Cetacean Take Reduction Team (AOCTRT) was formed to address the interaction of these fisheries with Western North Atlantic stocks of right, sperm, humpback, and pilot whales; and common, bottlenose, and spotted (Atlantic and pantropical) dolphins. A draft plan to reduce takes resulting from these gear types was

[35] Waring et al. (2003) note that the pelagic drift gillnet and the pelagic pair trawl fisheries no longer exist.

submitted, but an Atlantic Offshore Cetacean Take Reduction Plan was not finalized as a separate entity. Instead, several protective measures were implemented for these fisheries through the HMS FMP. In particular, NMFS has prohibited the use of pair trawls and swordfish driftnets in Atlantic pelagic fisheries, and implemented several other AOCTRT recommendations for the pelagic longline and shark gillnet fisheries. Since the nature of the fisheries that were included in the Plan has changed tremendously since 1996 when the Team was convened, NMFS disbanded the Team in August 2001.

Atlantic Longline Take Reduction Team and
Atlantic Trawl Gear Take Reduction Team

Data (Waring et al., 2006) indicated that the incidental take of pilot whales in the Atlantic pelagic longline fishery occurs at levels below PBR. The Southeast Fisheries Science Center (SEFSC) released an updated estimate of marine mammal bycatch in the U.S. Atlantic pelagic longline fishery during 2001 and 2002, which included the incidental take of long-finned pilot whales (Garrison, 2003). As a result, NMFS announced the formation of the Atlantic Longline Take Reduction Team in June 2005 (70 FR 36120); the initial TRT meeting was held on June 29 and 30, 2005. NMFS published a proposed rule on June 24, 2008 (73 FR 35623) and a final rule on May 19, 2009 (74 FR 23349), effective June 18, 2009. The plan consists of both regulatory and nonregulatory measures, including a special research area, gear modifications, outreach material, observer coverage, and captains' communications.

Current data (Waring et al., 2012) indicate that the incidental take of common and Atlantic-white sided dolphins and pilot whales in several Atlantic trawl gear fisheries occurs at levels below PBR for these species. NMFS has established the Atlantic Trawl Gear Take Reduction Team to reduce the incidental mortality and serious injury of these species. This team first met in September 2006, and developed a Take Reduction Strategy in December 2008. This strategy consists of voluntary measures, education and outreach efforts, and a research plan. NMFS continues to monitor the status of Atlantic-white sided dolphins and pilot whales. If the status changes then the team may reconvene.

9.4.2.4 Seals

Harbor Seal

In the western North Atlantic, harbor seals are distributed from the eastern Canadian Arctic and Greenland south to southern New England and New York, and occasionally the Carolinas (Boulva and McLaren, 1979; Gilbert and Guldager, 1998). It is believed that the harbor seals found along the U.S. and Canadian east coasts represent one population (Waring et al., 2003).

Since passage of the MMPA in 1972, the number of seals found along the New England coast has increased nearly five-fold; however, present data are insufficient to calculate a minimum population estimate for this stock (Waring et al., 2012).

Harbor seals were bounty hunted in New England waters until the mid-1960s. This hunt may have caused the demise of this stock in U.S. waters (Katona et al., 1993). Current sources of mortality include human interactions, such as boat strikes and fishing gear, power plant intake (12-20 per year; NMFS, unpublished data), oil, and shooting (around salmon aquaculture sites and fixed fishing gear); and natural events, such as storms, abandonment by the mother, and disease (Katona et al., 1993; NMFS, unpublished data). Interactions with Maine salmon aquaculture operations seem to be increasing, although the magnitude of interactions and seal mortalities has not been quantified (Anon., 1996).

Annually, small numbers of harbor seals regularly strand throughout their migratory range. Most reported strandings, however, occur during the winter period in the southern New England and Mid-Atlantic regions (NMFS, unpublished data). In 1980, more than 350 seals were found dead in the Cape Cod area from an influenza outbreak (Geraci et al., 1981).

Incidental takes of harbor seals have been recorded in groundfish gillnet, herring purse seine, halibut tub trawl, and lobster fisheries (Gilbert and Wynne, 1985 and 1987). Mortalities involving the herring purse seine, halibut tub trawl, and lobster fisheries are reportedly rare.

The Northeast multispecies sink gillnet fishery is responsible for the majority of harbor seal fishery takes on the East Coast of the United States. This fishery is located in the Gulf of Maine and in Southern New England. Average annual estimated fisheries-related mortality and serious injury to the harbor seal stock attributable to the Northeast multispecies sink gillnet fishery from 2005-2009 was 332 harbor seals (Waring et al., 2012).

The Mid-Atlantic coastal gillnet fishery was responsible for a minimal number of takes from 1993-1997 and 1999-2001, with observers recording only two mortalities, both in 1998 (Waring et al., 2003). Based on the observer coverage in this fishery, estimated mortality was zero from 1995 to 1997 and 1999 to 2001, and 11 in 1998 (0.77). The average annual estimated fishery-related mortality attributable to the Mid-Atlantic coastal gillnet fishery from 2005-2009 was 45 animals (Waring et al., 2012).

Gray Seal

The western North Atlantic population of gray seals occurs from New England to Labrador. There are two breeding concentrations in eastern Canada – one at Sable Island and one that breeds on the pack ice in the Gulf of St. Lawrence. There are several small breeding colonies on isolated islands along the coast of Maine and on outer Cape Cod and Nantucket Island in Massachusetts (Waring et al., 2003). The population estimate for the Sable Island and Gulf of St. Lawrence breeding groups was 143,000 in 1993. The population in waters off Maine increased from about 30 in the early 1980s to between 500 and 1,000 animals in 1993 and between 1,500 and 1,700 in 2001 (Waring et al., 2003). The gray seal population in Massachusetts increased from 2,010 in 1994 to 5,611 in 1999, although it is not clear how much of this increase may be due to animals emigrating from northern areas. Depending on the model used, the Nmin for the Canadian gray seal population was estimated to range between 125,541 and 169,064 (Trzcinski et al. 2005). The minimum population size for gray seals in U.S. waters is unknown.

Gray seals, like harbor seals, were hunted for bounty in New England waters until the late 1960s. The hunt may have severely depleted this stock in U.S. waters (Rough, 1995). In Canada, gray seals were hunted for several centuries by indigenous people and European settlers in the Gulf of St. Lawrence and along the Nova Scotia eastern shore, and were locally extirpated (Lavigueru and Hammill, 1993). By the mid-1900s, gray seals were considered to be rare, and in the mid-1960s, the population in eastern Canada was estimated to be 5,600 (Mansfield, 1966). Since the mid-1960s, the population has been increasing. During a bounty program (1976-1983) and a culling program (1967-1983), the average annual removals were 720 and 1,000 seals, respectively (Fisheries and Oceans Canada, 2001). Between 1993 and 2000, the annual kill of gray seals by hunters was: 1993 (0), 1994 (40), 1995 (364), 1996 (132), 1997 (72), 1998 (275), 1999 (98), and 2000 (342). The traditional hunt continued in 2002 and 2003, with 76 and 126 gray seals taken, respectively, off the Magdalen Islands and in other areas, except Sable Island, where commercial hunting is not permitted (Fisheries and Oceans Canada, 2003).

An unknown level of mortality also occurs in the mariculture industry (*i.e.*, salmon farming) and by deliberate shooting (NMFS, unpublished data). In addition, the Cape Cod stranding network has documented several animals with netting or plastic debris around their necks in the Cape Cod/Nantucket area. Between 1997 and 2001, 197 gray seal strandings were recorded, extending from Maine (25) to North Carolina (1). Most of the strandings were in Massachusetts (72), New York (55), and Maine (25). Twenty-three animals showed signs of human interactions: fishery (8), power plant (3), oil spill (6), shot (1), mutilated (1), boat strike (1), and other (3) (Waring et al., 2003). Stranding data probably underestimate the extent of fishery-related mortality and serious injury because not all of the marine mammals that die or are seriously injured wash ashore, nor will all of those that do wash ashore necessarily show signs of entanglement or other fishery interaction.

Fisheries interactions with gray seals take place primarily in the Northeast multispecies sink gillnet fishery in the Gulf of Maine and in Southern New England. There were 47 gray seal mortalities observed in this fishery between 1993 and 2001. Based on observer data, the average annual estimated mortality and serious injury attributable to this fishery from 2005-2009 was 678 gray seals (Waring et al., 2012).

Harp Seal

The harp seal occurs throughout much of the North Atlantic and Arctic Oceans and has been increasing off the East Coast of the United States from Maine to New Jersey. Harp seals are usually found off the U.S. from January to May, when the western stock of harp seals is at its most southern point of migration. The minimum population estimate for the western North Atlantic is 6.5 million seals in Canada; present data are insufficient to calculate the minimum population estimate for U.S. waters (Waring et al., 2012).

A large number of harp seals are killed in Canada, Greenland, and the Arctic. For 2003 to 2005, the Canada Department of Fisheries and Oceans set the three-year total allowable catch (TAC) of harp seals at 975,000, with an annual TAC of up to 350,000 in any two years provided that the combined TAC over three years was maintained by a reduction in the TAC in the other

years (Fisheries and Oceans Canada, 2003). In addition, annual harp seal mortalities in Greenland and the Arctic may exceed 100,000 (Waring et al., 2003). The commercial catches do not account for subsistence takes and animals that are killed but not landed (struck and lost) (Lavigne, 1999). A recent analysis of the struck and loss rates suggests that the rate for young seals (majority of Canadian take) is less than 5 percent, while losses of older seals is higher (approximately 50 percent) (DFO, 2000).

From 1988 through 1993 strandings each year were under 50, approaching 100 animals in 1994, and exceeding 100 animals in 1995-1996 (Rubinstein 1994; Waring et al., 2003). In addition, in 1996, there was a stranding in North Carolina. From 1997 through 2001, 980 strandings were recorded, of which 50 percent (495) were in 2001 (Waring et al., 2003). Fifty-two percent (n=258) of the 2001 strandings were carcasses, and the remaining 49 percent were live strandings. Strandings were recorded from Maine (166) to North Carolina (1), and the highest numbers occurred in Massachusetts (339) and New York (277). Many were live strandings, but some seals were euthanized due to the animal's condition. Other sick and injured seals were transported to rehabilitation facilities, where some subsequently died. Few animals showed signs of human interactions and, except for 4 shot animals, 8 fishery interactions, 1 mutilated animal, 1 boat strike, and 1 ingested plastic, the interactions were classified as other (e.g., no signs of human interaction). Factors contributing to a dramatic increase in strandings in 2001 are unknown (Harris et al., 2002), but may indicate a possible shift in the stock's distribution or expansion southward into U.S. waters (Waring et al., 2003).

The majority of fisheries-related mortality in harp seals can be attributed to the Northeast multispecies sink gillnet fishery, which is based in the Gulf of Maine and in Southern New England. From 2005-2009, the average annual fishery-related mortality and serious injury to this stock from the Northeast multispecies sink gillnet fishery was estimated at 174 harp seals (Waring et al., 2012). Harp seal interactions with the Mid-Atlantic coastal gillnet fishery have been minimal since observer coverage began in 1993. No harp seals were taken on observed trips from 1993 to 1997 or from 1999 to 2001. One take was recorded in 1998. The average annual estimated fishery-related mortality attributable to this fishery between 2005-2009 was 57 harp seals (Waring et al., 2012).

9.4.2.5 Sea Turtles

The diverse life history of sea turtles leaves them susceptible to numerous threats on land, in the benthic environment, and in the pelagic environment. Natural threats to sea turtles include hurricanes, predation by native species, cold stunning, and biotoxin exposure. Anthropogenic factors that may affect turtle nesting habitat include climate change; beach erosion; beach armoring and nourishment; artificial lighting; beach cleaning; increased human presence; recreational beach equipment; beach driving; coastal construction and fishing piers; exotic dune and beach vegetation; and poaching. An increased human presence at some nesting beaches or close to nesting beaches has led to secondary threats such as the introduction of exotic fire ants and an increased presence of native species (e.g., raccoons, armadillos, and opossums) that feed on turtle eggs. When sea turtles shift from the land environment to the pelagic and benthic marine environments, one of the principal anthropogenic threats they face originates from commercial fisheries, and the threat of serious injury and mortality resulting from interactions with commercial fishing gear. Additional anthropogenic threats to sea turtles in the marine environment include climate change; oil and gas exploration, coastal development, and transportation; marine pollution (including ingestion of and entanglement in marine debris); underwater explosions; hopper dredging; offshore artificial lighting; power plant entrainment and/or impingement; marina and dock construction and operation; boat collisions; and poaching.

Leatherbacks are susceptible to entanglement in the lines associated with trap/pot gear used in several fisheries. From 1990 to 2000, 92 entangled leatherbacks were reported from New York through Maine (Dwyer *et al.,* 2002). Additional leatherbacks stranded wrapped in line of unknown origin or with evidence of a past entanglement (Dwyer *et al.,* 2002). From 2002 to 2011, NMFS received 159 reports of sea turtles entangled in vertical lines from Maine to Virginia, with 147 events confirmed (verified by photo documentation or response by a trained responder; NMFS and USFWS 2008). Of the 147 confirmed events during this period, 133 events involved leatherbacks, 13 involved loggerheads, and 1 involved a green sea turtle. NMFS identified the gear type and fishery for 93 of the 147 confirmed events, which included lobster (5125), whelk/conch (23), black sea bass (10), crab (7), and research pot gear (2). A review of leatherback mortality documented by the Sea Turtle Stranding and Salvage Network (STSSN) in Massachusetts suggests that vessel strikes and entanglement in fixed gear (primarily lobster pots and whelk pots) are the principal sources of this mortality (Dwyer *et al.,* 2002).

Efforts to address sea turtle takes from various pressures have occurred or are underway. These include the following:

- Atlantic sea scallop dredge fishery,
- Trawl fisheries,
- Gillnet fisheries,
- Hook and line fisheries,
- Pot/Trap fisheries,
- Fixed net fisheries,
- Vessel strikes,
- Oil and gas activities,
- Dredging operations and shore stabilization activities, and
- Power plants.

Atlantic Sea Scallop Dredge Fishery

To reduce serious injury and mortality to sea turtles resulting from capture in the sea scallop dredge bag, NMFS has required the use of a chain-mat modified dredge in the Atlantic sea scallop fishery since 2006 (71 FR 50361, August 25, 2006; 71 FR 66466, November 15, 2006; 73 FR 18984, April 8, 2008; 74 FR 20667, May 5, 2009). Federally permitted scallop vessels south of 41°09'N. from the shoreline to the outer boundary of the EEZ are required to modify their dredge gear by adding an arrangement of horizontal and vertical chains (a "chain mat") over the opening of the dredge bag from of May 1 through November 30 each year. This modification is not expected to reduce the overall number of sea turtle interactions with gear. It is expected to reduce the severity of some sea turtle interactions with scallop dredge gear.

Beginning May 1, 2013, all limited access scallop vessels, as well as Limited Access General Category vessels with a dredge width of 10.5 feet or greater, must use a Turtle Deflector Dredge (TDD) in the Mid-Atlantic (west of 71° W longitude) from May 1 through October 31 each year (77 FR 20728, April 6, 2012). The purpose of the TDD requirement is to deflect sea turtles over the dredge frame and bag rather than under the cutting bar, so as to reduce sea turtle injuries due to contact with the dredge frame on the ocean bottom (including being crushed under the dredge frame). The TDD has specific components which are defined in the regulations. These requirements eliminate a number of sources of potential entrapment at the front and on top of the dredge frame (e.g., sloping face of the forward cutting bar, reduced number of bale support bars, reduced spacing of struts). When combined with the effects of chain mats, which decrease captures in the dredge bag, the TDD should provide greater sea turtle benefits by reducing serious injury and mortality due to interactions with the dredge frame, compared to a standard New Bedford dredge. Observations of interactions between sea turtle carcasses and the TDD suggest that the serious injury rate of the TDD is much lower than a traditional dredge (Smolowitz et al. 2010). NMFS has produced a wheelhouse card describing the chain mat and TDD requirements to help fishermen meet these requirements. Additional measures to help reduce the impact of takes in the marine environment are described below under Other Efforts to Address Takes in Fisheries.

Trawl Fisheries

Turtle Excluder Devices (TEDs) have been the primary tool used to reduce serious injury and mortality to sea turtles resulting from shrimp trawling activities, as well as trawls targeting summer flounder.[36] A TED is a grid of bars with an opening in the net at either at the top or the bottom to allow the turtle to escape. The grid is fitted into the shrimp trawl before the codend. Small animals like shrimp pass through the bars and are caught in the bag end of the trawl. Large animals such as turtles and sharks, when caught in the trawl, encounter the grid bars and escape through the opening. NMFS has been able to show that, when used properly, TEDs are effective at excluding up to 97 percent of sea turtles with minimal loss of shrimp. Shrimp

[36] For a description of the development of TEDs and the regulation history in the shrimp fishery, see Appendix 1 in the 2012 section 7 consultation (NMFS 2012).

trawlers operating in the Atlantic Area or Gulf Area[37] are required to install a TED on each net that is rigged for fishing, unless the trawler is fishing under one of the exemptions (e.g., skimmer trawl, try net) and all of the requirements of the exemption are met (50 CFR §223.206).

Leatherbacks are likely to encounter shrimp trawls working in the coastal waters off the U.S. Atlantic coast (from Cape Canaveral, Florida through North Carolina) as they make their annual spring migration north. For many years, TEDs that were required for use in the U.S. South Atlantic and Gulf of Mexico shrimp fisheries were less effective for leatherbacks as compared to the smaller, hard-shelled turtle species, because the TED openings were too small to allow leatherbacks to escape. To address this problem, NMFS issued a final rule on February 21, 2003, to amend the TED regulations (68 FR 8456, February 21, 2003). Modifications to the design of TEDs are now required in order to exclude leatherbacks as well as large benthic immature and sexually mature loggerhead and green sea turtles. Given those modifications, Epperly et al. (2002) anticipated an average of 80 leatherback mortalities a year in shrimp gear interactions, dropping to an estimate of 26 leatherback mortalities in 2009 due to effort reduction in the Southeast shrimp fishery (Memo from Dr. B. Ponwith, SEFSC, to Dr. R. Crabtree, SERO, January 5, 2011).

In 2011, NMFS published a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and to conduct scoping meetings. NMFS is considering a variety of regulatory measures to reduce the bycatch of threatened and endangered sea turtles in the southeastern U.S. shrimp fishery in light of new concerns regarding the effectiveness of existing TED regulations in protecting sea turtles (76 FR 37050, June 24, 2011). On May 10, 2012, NMFS proposed to withdraw the alternate tow time restriction and require all skimmer trawls, pusher-head trawls, and wing nets (butterfly trawls) rigged for fishing to use TEDs in their nets. The rule was proposed to reduce incidental mortality and to aid in the protection and recovery of listed sea turtle populations (77 FR 27411). The public comment period on this proposed rule closed on July 9, 2012.

TEDs are also required for summer flounder trawlers in the summer flounder fishery-sea turtle protection area. This area is bounded on the north by a line extending along 37° 05'N (Cape Charles, VA) and on the south by a line extending out from the North Carolina-South Carolina border. Vessels north of Oregon Inlet, North Carolina are exempt from the TED requirement from January 15 through March 15 each year (50 CFR §223.206). The TED requirements for the summer flounder trawl fishery do not require the use of the larger escape opening. NMFS is considering increasing the size of the TED escape opening currently required in the summer flounder fishery and implementing sea turtle conservation requirements in other areas and in other fisheries (72 FR 7382, February 15, 2007; 74 FR 21630, May 8, 2009). Georgia currently requires TEDs on whelk, crab, and jellyfish trawls.

[37] Atlantic Area means all waters of the Atlantic Ocean south of 36 °33'00.8" N. lat. (the line of the North Carolina/Virginia border) and adjacent seas, other than waters of the Gulf Area, and all waters shoreward thereof, including ports (50 CFR 222.102). The Gulf Area means all waters of the Gulf of Mexico west of 81° W. long. (the line at which the Gulf Area meets the Atlantic Area) and all waters shoreward thereof, including ports (50 CFR 222.102.

Actions to protect sea turtles also include an initiative, released by NMFS in June 2001, to address sea turtle bycatch in the Atlantic and Gulf of Mexico more holistically by gear type and across jurisdictional boundaries. The northeast component of the Strategy for Sea Turtle Conservation and Recovery in Relation to Atlantic Ocean and Gulf of Mexico Fisheries (Strategy) is focusing on bycatch reduction in trawl fisheries as a top priority. On May 9, 2009, NMFS published an NOI to prepare an Environmental Impact Statement and conduct public scoping meetings, and made available a scoping document presenting various approaches to sea turtle conservation measures in Atlantic trawl fisheries (74 FR 21627).

Research on the effectiveness of TEDs and other conservation measures have been, and continue to be, conducted in Mid-Atlantic and Southeast trawl fisheries. Differences in trawl designs and fishing methods may necessitate modifications or adjustments to TEDs before they can be applied to other trawl fisheries. Existing and new modified TED designs have been tested in the summer flounder (Salerno and Eayrs, 2010), Atlantic sea scallop (Lawson and DeAlteris, 2006; DeAlteris and Parkins, 2009a), and Atlantic croaker (Gearhart 2010) fisheries. Preliminary testing has also been conducted in the whiting (DeAlteris and Parkins, 2009b) and *Loligo* (longfin) squid (DeAlteris and Parkins, 2010) fisheries. Another gear modification developed and currently being evaluated in the summer flounder fishery is the topless trawl. The topless trawl has an extended headrope designed to allow sea turtles to escape. This gear has been tested for sea turtle exclusion. A number of trawls with different headrope lengths were tested off the coast of Georgia in 2011. During testing of the trawl with a 160 foot headrope, the experimental gear (i.e., topless trawl) caught 1 sea turtle and the control gear (i.e., traditional trawl) caught 25 (DeAlteris and Parkins, 2012). Tow time data loggers have been developed and now are being evaluated to determine whether they can be used to facilitate enforcement of tow time restrictions. Attached to the trawl door and triggered when the logger reaches a defined depth, the data loggers document tow times. Data loggers are being tested under commercial conditions to determine their operational effectiveness. Additional measures to help reduce the impact of takes in the marine environment are described below under Other Efforts to Address Takes in Fisheries.

Gillnet Fisheries

To reduce the impact of large-mesh gillnet fisheries in the Mid-Atlantic, NMFS published a final rule in December 2002 (67 FR 71895) which enacted a seasonally adjusted gear restriction by closing portions of the Mid-Atlantic EEZ to fishing with gillnets with a mesh size larger than 8-inch stretched mesh. These restrictions were revised in 2006 (73 FR 24776, April 26, 2006). Currently, gillnets with stretched mesh of 7-inches (17.8 cm) or larger are prohibited in the EEZ (as defined in 50 CFR 600.10) during the following times and in the following areas: (1) north of the North Carolina/South Carolina border to Oregon Inlet at all times, (2) north of Oregon Inlet to Currituck Beach Light, North Carolina from March 16 through January 14, (3) north of Currituck Beach Light, North Carolina to Wachapreague Inlet, Virginia from April 1 through January 14, and (4) north of Wachapreague Inlet, Virginia to Chincoteague, VA from April 16 through January 14.

NMFS has also issued regulations to address the interaction of sea turtles in gillnet gear fished in Pamlico Sound, North Carolina. Waters of Pamlico Sound are closed to fishing with gillnets with a stretched mesh size larger than 4 ¼ inch (10.8 cm) from September 1 through

December 15 each year to protect sea turtles. The closed area includes all inshore waters of Pamlico Sound, and all contiguous tidal waters, south of 35E46.3' N, north of 35E00' N, and east of 76E 30' W. As described above, North Carolina has adopted a number of gillnet requirements to reduce the take and mortality of sea turtles in the inshore gillnet fisheries. Additional measures to help reduce the impact of takes in the marine environment are described below under Other Efforts to Address Takes in Fisheries.

Hook-and-Line Fisheries

A number of requirements are in place in the HMS pelagic longline fishery to reduce bycatch, and impacts resulting from bycatch, of sea turtles. Measures include mandatory circle hook and bait requirement, and mandatory possession and use of sea turtle release and disentanglement gear. Fishermen must also possess and use circle hooks and type-approved equipment designed to safely remove fishing hooks and lines from incidentally captured fisheries (50 CFR §635.21). Additionally, owners and operators of HMS-permitted vessels using pelagic longline, bottom longline, or gillnet gear are required to become trained and certified at a Protected Species Safe Handling, Release, and Identification Workshop. These workshops ensure that fishermen possess the skills and knowledge to correctly identify and handle protected species and to maximize the safe removal of the gear from incidentally captured sea turtles. Fishermen are also required to comply with safe handling and release protocols. The safe removal of fishing gear from sea turtles prior to release is important to their survival.

NMFS has also developed and distributed Northeast Marine Mammal and Sea Turtle Protection Guidelines for Recreational Fishermen and Boaters. NMFS continues to reach out to the recreational community on safe fishing practices to reduce interactions with protected species. Additional measures to help reduce the impact of takes in the marine environment are described below under Other Efforts to Address Takes in Fisheries.

Pot/Trap Fisheries

Any agent or employee of NMFS, the USFWS, the U.S. Coast Guard, or any other federal land or water management agency, or any agent or employee of a state agency responsible for fish and wildlife, when acting in the course of his or her official duties, is allowed to take threatened or endangered sea turtles encountered in the marine environment if such taking is necessary to aid a sick, injured, or entangled endangered sea turtle, or dispose of or salvage a dead endangered or threatened sea turtle (50 CFR §223.206(b); 50 CFR 2§2.310). This take exemption extends to NMFS' STSSN. These measures also help to reduce mortality of sea turtles caught in fishing gear by allowing responders to aid the animal. Animals may be brought into rehabilitation for treatment.

NMFS Northeast Region established the Northeast Region Sea Turtle Disentanglement Network (STDN) in 2002 in response to the high number of leatherback sea turtles found entangled in pot gear along the U.S. Northeast Atlantic coast. The STDN is considered a component of the larger STSSN program and operates in all states in the region. The STDN responds to entangled sea turtles in order to disentangle and release live animals, thereby reducing serious injury and mortality. In addition, the STDN collects data on live and dead sea turtle entanglement events, providing valuable information for management purposes. The

NMFS Northeast Regional Office oversees the STDN program and manages the STDN database. NMFS has also distributed information to federal lobster permit holders on handling and resuscitation of sea turtles and on the NER STDN Disentanglement Guidelines. Measures to help reduce the impact of takes in the marine environment are described below under Other Efforts to Address Takes in Fisheries

Fixed Net Fisheries

NMFS has issued several regulations to help protect sea turtles from entanglement in and impingement on Virginia pound net gear (66 FR 33489, June 22 2001; 67 FR 41196; June 17, 2002; 68 FR 41942, July 16, 2003; 69 FR 24997, May 5, 2004). Currently, all offshore pound leaders in Pound Net Regulated Area I, as defined in 50 §CFR 222.102, must meet the definition of a modified pound net leader from May 6 through July 15. The modified leader has been found to be effective in reducing sea turtle interactions. Nearshore pound net leaders in Pound Net Regulated Area I and all pound net leaders in Pound Net Regulated Area II must have mesh size less than 12 inches (30.5 cm) stretched mesh and may not employ stringers (50 CFR 223.206) from May 6 through July 15 each year. A pound net leader is exempt from these measures only if it meets the definition of a modified pound net leader. In addition, there are monitoring and reporting requirements in this fishery (50 CFR §223.206). Since the 2010 fishing season, the state of Virginia has required modified pound net leaders (as defined by federal regulations) east of the Chesapeake Bay Bridge year round, and in offshore leaders in Regulated Area I (also as defined by Federal regulations) from May 6 to July 31.

As described above, the STDN responds to entangled sea turtles in order to disentangle and release live animals, thereby reducing serious injury and mortality. In addition, the STDN collects data on live and dead sea turtle entanglement events, providing valuable information for management purposes. The STDN has responded to sea turtles trapped in fishing weirs in Massachusetts, releasing live turtles that were free swimming in the weirs and documenting dead turtles either entangled or free floating in the weir.

Other Efforts to Address Takes in Fisheries

NMFS published as a final rule in the *Federal Register* (66 FR 67495, December 31, 2001) specifying handling and resuscitation requirements for sea turtles that are incidentally caught during scientific research or fishing activities. Persons participating in fishing activities or scientific research are required to handle and resuscitate (as necessary) sea turtles as prescribed in the regulations (50 CFR §223.206). These measures help to prevent mortality of turtles caught in fishing or scientific research gear.

Vessel Strikes

In some cases, NMFS, through section 7 of the ESA, has worked with the USCG in an attempt to reduce the probability of vessel strikes during permitted offshore race events. Most races now require a protected species watch program and aerial surveys are usually required prior to and throughout the event. If sea turtles are located within the designated race area, the event is postponed. However, most vessel strikes occur outside of these venues, and there is growing number of licensed vessels, especially inshore and nearshore. Slow speed zones,

implemented for manatee protection, may provide some benefits to turtles, although this has not been quantified (NMFS and USFWS, 2008). One of the efforts of the STSSN is to respond to sea turtles with injuries, including those caused by vessel interactions. These animals are brought into rehabilitation facilities for medical care and eventually released back into the wild once the wounds have healed.

Oil and Gas Activities

Various Federal, state, and local entities have spill contingency plans and emergency response teams that could reduce potential impacts from these spills. In addition to the response efforts described above, NMFS has prepared protocols for responding to oiled sea turtles. In the Northeast Region, NMFS is working with the Office of Response and Restoration to develop a regional plan for response to and management of protected species during oil spills and other environmental emergencies. Oil and gas development and exploration in other areas on the Texas coast where Kemp's ridleys have been documented nesting are regulated by various local, state, and Federal regulations (NMFS, USFWS, and SEMARNAT, 2010).

Dredging Operations and Shore Stabilization Activities

Through the ESA section 7 consultation process, measures are implemented to minimize and monitor incidental take of sea turtles. These measures can include seasonal restrictions, observers to monitor entrainment of sea turtles, sea turtle deflectors installed on hopper dredge dragheads, and relocation trawling to relocate sea turtles away from active dredges. Additionally, the States of Georgia, South Carolina, Florida and the USFWS have implemented seasonal restrictions and other protective conditions to reduce the effects of dredging, beach stabilization and nourishment projects on sea turtles.

During ESA section 7 consultations for beach nourishment projects, FWS places conditions on projects to minimize impacts to sea turtles. Minimization measures include nest relocation to non-project areas when nourishment is conducted during the nesting season, use of beach quality sand, sand compaction and escarpment monitoring and remediation, and management of project lighting.

Power Plants

Monitoring procedures have been implemented seasonally, and procedures have been developed to rescue turtles found within intake canals. In 1993, Public Service Electric and Gas implemented a policy of removing the ice barriers from the trash racks on the intake structure at the Salem, New Jersey Nuclear Power Plant during the period between May 1 and October 24, which resulted in substantially lower turtle impingement rates at Salem in subsequent years (U.S. NRC, 2010). Power plant operations are also evaluated through the section 7 consultation process.

9.4.2.6 Summary of Commercial Fishing Interactions Affecting Other Protected Species

As described above, the stocks of other whales, porpoises, dolphins, sea turtles, and seals whose ranges overlap with ALWTRP-regulated fisheries have been and continue to be affected by various anthropogenic risk factors. Exhibit 9-9 summarizes the current major interactions with commercial fisheries for each species, the past, present, and reasonably foreseeable future actions taken to reduce incidental takes in these fisheries, and the overall effect of these actions.

Exhibit 9-9

SUMMARY OF COMMERCIAL FISHING INTERACTIONS AFFECTING OTHER PROTECTED SPECIES [1]

Species	Major Sources of Mortality from Commercial Fisheries (as described in the MMPA LOF)	Magnitude of Impact from ALWTRP-Regulated Gear	Major Past, Present and Reasonably Foreseeable Future Actions (PPRFFAs) [2]	Effect of PPRFFAs
Blue Whale Sei Whale Sperm Whale	• No significant sources at this time	Low	In 1996, sperm whales were considered under the AOCTRT for HMS fisheries. NMFS has implemented some of the AOCTRT recommendations through the HMS FMP. No further specific actions are planned for these species at this time; however, these species could benefit from ALWTRP measures and other RFFAs intended to protect other marine mammals.	Reduced Entanglement Risk
Harbor Porpoise	• Northeast sink gillnet • Mid-Atlantic coastal gillnet	Moderate	The HPTRP was published on December 1, 1998, became effective on January 1, 1999, and was amended on February 19, 2010 to include more management measures. The Plan regulates gillnet operations from the Gulf of Maine to the Mid-Atlantic region.	Reduced Entanglement Risk
WNA Coastal Bottlenose Dolphin	• Mid-Atlantic coastal gillnet • Southeastern U.S. Atlantic shark gillnet • Southeast Atlantic gillnet	Moderate	The BDTRP was published on April 26, 2006, became effective on May 26, 2006, and was amended on July 31, 2012 to include more management measures. The plan is designed to reduce incidental takes in the Mid- and South Atlantic regions.	Reduced Entanglement Risk
Atlantic White-sided Dolphin	• Northeast and Mid-Atlantic bottom trawl • Northeast and Mid-Atlantic mid-water trawl (including pair trawl)	Low	NMFS established the Atlantic Trawl Gear Take Reduction Team (ATGTRT) in September 2006 to address the incidental mortality and serious injury of white-sided dolphins, among other protected species, in the Northeast and Mid-Atlantic bottom trawl and Northeast and Mid-Atlantic mid-water trawl (including pair trawl) fisheries. The ATGTRT developed a take reduction strategy to reduce bycatch of these species.	Reduced Entanglement Risk

Exhibit 9-9

SUMMARY OF COMMERCIAL FISHING INTERACTIONS AFFECTING OTHER PROTECTED SPECIES [1]

Species	Major Sources of Mortality from Commercial Fisheries (as described in the MMPA LOF)	Magnitude of Impact from ALWTRP-Regulated Gear	Major Past, Present and Reasonably Foreseeable Future Actions (PPRFFAs) [2]	Effect of PPRFFAs
Risso's dolphin	• Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline (Atlantic portion) • Northeast sink gillnet	Low	The NE sink gillnet fishery is currently regulated under the ALWTRP. Takes from commercial fisheries do not exceed PBR for this species at this time, thus no RFFAs are currently planned. Though not a focal species, this species may benefit from a Take Reduction Team process that will result in the development of a take reduction plan for the Atlantic large pelagics longline fishery.	Reduced Entanglement Risk
Spotted Dolphin (Atlantic and Pantropical)	• Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline (Atlantic portion)	Low	Takes from commercial fisheries do not exceed PBR for this species at this time, thus no RFFAs are currently planned. Though not a focal species, this species may benefit from a Take Reduction Team process that will result in the development of a take reduction plan for the Atlantic large pelagics longline fishery.	Reduced Entanglement Risk
Striped Dolphins	• Northeast and Mid-Atlantic bottom trawl • Northeast and Mid-Atlantic mid-water trawl (including pair trawl)	Low	Takes from commercial fisheries do not exceed PBR for this species at this time, thus no RFFAs are currently planned. Though not a focal species, this species may benefit from a Take Reduction Team process that will result in the development of a take reduction plan for Atlantic trawl fisheries.	Reduced Entanglement Risk
Pilot Whale Common Dolphin	• Northeast and Mid-Atlantic bottom trawl • Northeast and Mid-Atlantic mid-water trawl (including pair trawl) • Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline (Atlantic portion)	Low	In 1996, these species were considered under the AOCTRT for HMS fisheries. NMFS has implemented some of the AOCTRT recommendations through the HMS FMP. Recent byctach information indicates takes of these species in Atlantic trawl and pelagic longline fisheries does not exceed PBR. NMFS has established new Take Reduction Teams to develop take reduction plans to reduce the incidental mortality and serious injury to pelagic delphinids in the Atlantic large pelagics longline fishery and Atlantic trawl fisheries.	Reduced Entanglement Risk

Exhibit 9-9

SUMMARY OF COMMERCIAL FISHING INTERACTIONS AFFECTING OTHER PROTECTED SPECIES [1]

Species	Major Sources of Mortality from Commercial Fisheries (as described in the MMPA LOF)	Magnitude of Impact from ALWTRP-Regulated Gear	Major Past, Present and Reasonably Foreseeable Future Actions (PPRFFAs) [2]	Effect of PPRFFAs
Harbor Seal	• Northeast sink gillnet • Mid-Atlantic coastal gillnet	Low	Takes from commercial fisheries do not exceed PBR for this species at this time, thus no RFFAs are currently planned.	No Known Effect
Gray Seal	• Northeast sink gillnet	Low	PBR for this species is unknown at this time. However, fishery-related mortality for this stock is considered to be low relative to population size, thus no RFFAs are currently planned.	No Known Effect
Harp Seal	• Northeast sink gillnet • Mid-Atlantic coastal gillnet	Low	Takes from commercial fisheries do not exceed PBR for this species at this time, thus no RFFAs are currently planned.	No Known Effect
Kemp's ridley Sea Turtle[3] Loggerhead Sea Turtle[3] Leatherback Sea Turtle[3] Green Sea Turtle[3] Hawksbill Sea Turtle[3, 4] Olive Ridley Sea Turtle[3, 4]	• Otter trawl (targeting shrimp and summer flounder) • Mid-Atlantic coastal gillnet • Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline (Atlantic portion)	Moderate	Turtle Excluder Devices (TEDs) have been the primary tool to reduce takes by otter trawls in shrimp and summer flounder trawling activities, the greatest source of sea turtle mortality. Mid-Atlantic coastal gillnet mesh size is currently regulated under a seasonally adjusted gear restriction to reduce turtle takes, and a May, 2004 final rule enacts seasonal restrictions to reduce incidental turtle mortality in the Virginia pound net fishery. Previous HMS pelagic longline fishery area closures have led to the July, 2004 implementation of circle hook, bait, and turtle release gear requirements for this fishery	Reduced Entanglement Risk

Notes:

[1] Sources of mortality as found in Waring et al., 2000; Waring et al., 2002; and Waring et al., 2003.

[2] Fishery Management Plans: Positive effects have also resulted from the implementation of various management actions for fisheries that interact with protected species. Reductions in entanglement risk have indirectly resulted from measures such as time/area closures and effort reductions (e.g., days-at-sea allocations, trip limits).

[3] Sources of mortality differ for each species (i.e., Kemp's ridleys are not taken in longline fishery).

[4] No fisheries-related takes of hawksbill sea turtles have been observed in the Northeast or Mid-Atlantic (NMFS, 2003c); likewise, no information exists on takes of olive ridley sea turtles in the Northeast or Mid-Atlantic.

9.4.3 Affected Fisheries

Chapter 4 identifies twelve major fisheries affected by the regulatory alternatives and provides a basic description of each fishery, including current regulations, landings, revenue, number of permitted vessels, and key ports. This section adds a more detailed history of Federal management for each fishery. Each section begins with a summary of available data on landings, revenue, and vessel activity in the fishery of interest. This is followed by a chronological discussion of major Federal management actions associated with each fishery, and the circumstances that led to these actions. Each section includes a review of the evolving status of the fishery and a summary of any reasonably foreseeable future actions for that fishery. The information presented in this section is based primarily on fishery management plans prepared by the National Marine Fisheries Service and fishery management councils, including the New England Fishery Management Council (NEFMC), the Mid-Atlantic Fishery Management Council (MAFMC), the South Atlantic Fishery Management Council (SAFMC), and the Atlantic States Marine Fisheries Commission (ASMFC).

In addition to regulations stemming from the MSA, many fisheries are also subject to additional regulations resulting from the protection of the nine species previously mentioned that are protected either by the ESA of 1973 or the MMPA of 1972. Following the management history for each fishery, a final section includes a brief summary of additional regulations, if any, resulting from significant interactions with these protected species.

9.4.3.1 American Lobster

The commercial lobster fishery is the one of the most economically important fishery along the Atlantic coast. The ex-vessel value of American lobster landings totaled approximately $423 million in 2011. More than 2,800 vessels held Federal permits to fish for lobster during the 2009 fishing year (a fishing year extends from May 1 to April 30). These vessels employ a variety of gear, but traps/pots, the use of which is regulated under the ALWTRP, account for the majority of lobster landings.

Management History

Management of the lobster fishery by individual states began as early as the 1870s and continued through much of the 1900s. In the early 1970s, the weakness of this fragmented management system became evident, as lobster landings declined and the lobster fishery showed signs of collapse. It was clear that a more coordinated management system was needed, making the lobster fishery one of the first targeted for Federal management. In 1983, the Federal government approved the first Federal lobster fishery management plan (FMP).

Despite having a Federal FMP, uniform regulation across states remained a problem. For example, although states received the Federal FMP in 1978, some states had still not implemented the FMP's recommended minimum carapace measures in 1983 when the final FMP was approved. A second shortcoming of the Federal FMP stemmed from its geographic limitation to lobster fishing only in the Exclusive Economic Zone. With approximately 80 percent of lobstering activity occurring in state waters, the Federal FMP objectives of maintaining a sustainable fishery and preventing overfishing could not be effectively achieved without including state waters in the management program. This issue was resolved with the passage of the Atlantic Coastal Fisheries Cooperative Management Act (Atlantic Coastal Act) in 1993. The Atlantic Coastal Act represents a new and innovative approach to coordinated management of fisheries along the Atlantic coast, providing a mechanism to ensure Atlantic coastal state compliance with mandated conservation measures in Commission-approved fishery management plans. This legislation provided the foundation to transfer lobster management from the federally-oriented New England Fishery Management Council to the Atlantic States Marine Fisheries Commission (ASMFC).

New information on the status of the lobster resource became available through a 1996 stock assessment conducted jointly by state and Federal scientists. The assessment, which represented an analysis of lobster stocks through 1994, concluded the American lobster resource was overfished as a result of a dramatic increase in fishing effort, and declared the resource vulnerable to collapse throughout the range of the species. The panel believed that "the risk of stock collapse would be contained or reduced if the fishing effort were capped or reduced, and legal size increased." Following this assessment, the Atlantic States Marine Fisheries Commission in 1997 approved Amendment 3 to the Interstate Fishery Management Plan (ISFMP).

Amendment 3 created seven lobster management areas (LMAs) covering U.S. waters from Maine to North Carolina (see Exhibit 4-1). The management measures implemented under Amendment 3 included regulations protecting ovigerous females, trap size restrictions, escape vent size increases, trap tag requirements, and requirements for permits and licensing. In addition to these requirements, trap limits were implemented for all state and Federal lobster permit holders, reducing the maximum trap allocation over a three year period from 1,200 down to 800 traps per vessel for nearshore management areas (except Long Island Sound), and 1,800 traps per vessel for the offshore management area. These schedules were designed to control fishing effort, end overfishing, and begin the rebuilding of American lobster stocks.

Through Amendment 3, the ASMFC also established seven Lobster Conservation Management Teams (LCMT) charged with the development of management programs for each LMA. During the fall of 1998, the seven LCMTs developed and submitted management proposals for each LMA to the Commission's American Lobster Management Board (Board). The Board subsequently approved the proposals for incorporation into Amendment 3 in two phases:

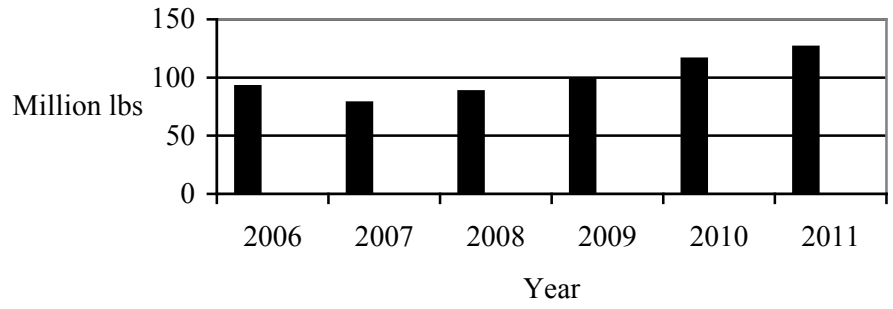
- **Addendum I (adopted in 1999)**: Addendum I incorporated recommendations from LCMT proposals directed at effort control, including the establishment of trap limits for LMAs 3, 4, 5, and 6 based on historical participation levels.

- **Addendum II (adopted in 2001)**: Addendum II incorporated recommendations from LCMT proposals directed at rebuilding lobster egg production levels. In addition, Addendum II detailed a trap reduction schedule for LMA 3, scheduled to take place over four years.[38]

Despite the warning articulated in the 1996 stock assessment and the new regulations implemented under Amendment 3 and Addenda 1 and 2, lobster landings continued to increase throughout the 1990s. Since 2007, lobster landings have increased (Exhibit 9-10). At the same time as scientific advice suggested that the lobster fishery was overfished, lobster landings achieved record levels.

Exhibit 9-10

LOBSTER LANDINGS 2006-2011



Source: Dealer data provided by NMFS Northeast Region. Fisheries Statistics Office.

The Commission initiated an updated stock assessment in 1999 in an effort to clarify the biological assessment of the lobster resource. The updated stock assessment, completed in March 2000, supported previous assessments of the vulnerability of the lobster resource as a result of increasing levels of fishing effort throughout the species range. In addition, the 2000 stock assessment declared the lobster resource "growth" overfished, according to the overfishing definition provided in the 1997 ISFMP.[39] Growth overfishing describes a fishery in which the maximum yield is not being produced because of high fishing mortality effects on smaller lobsters. Recruitment overfishing, in contrast, describes a fishery in which the number of new lobsters available to the fishery each year is reduced by high fishing mortality rates. The 2000 stock assessment concluded that the lobster resource did not exhibit signs of recruitment overfishing, a condition believed to be much more serious and a precursor to stock depletion and stock collapse.

[38] Each LMA 3 trap allocation of greater than 1,200 traps will be reduced on the basis of a sliding scale. Trap allocations in such cases will not go below a baseline of 1,200 traps. LMA 3 trap allocations of less than 1,200 traps will remain at their initial qualifying level and will not be permitted to increase. For more detailed information, see Addendum II to Amendment 3 to the Interstate Fishery Management Plan, available at http://www.asmfc.org/americanLobster.htm.

[39] For assessment purposes, the lobster population is split into three regions: Gulf of Maine (GOM), Georges Bank and South (GBS), and South of Cape Cod to Long Island Sound (SCCLIS). The quality and quantity of data do not currently permit the lobster population to be assessed at a greater level of detail.

The Board initiated development of Addendum III in August 2001. Addendum III incorporated new measures designed to meet the recommended $F_{10\%}$ outlined in the updated stock assessment by 2008.[40] Measures implemented include minimum and maximum gauge sizes and mandatory v-notching in LMAs 1 and 3.

In 1999, a mass mortality incident in the Long Island Sound area brought new challenges to the management of the lobster fishery. Beginning in October 1999, a number of fishing operations in the Western Long Island Sound area reported hauling traps containing an unusual number of dead or lethargic American lobsters. Reports of similar incidents increased in number and geographic scope into November and December, until roughly 60 percent of the Sound was reporting mass lobster mortality events. On January 26, 2000, the U.S. Secretary of Commerce declared the Long Island Sound (LIS) lobster die-off a fishery resource disaster. Following this declaration, the U.S. Congress approved a $13.9 million emergency appropriation to address the biological and economic consequences of the fishery disaster. Using this emergency appropriation, NMFS allocated $7.3 million for the economic relief of LIS fishermen and communities dependent on the LIS lobster fishery. The remaining $6.6 million was used to establish a comprehensive research effort into the possible causes of the mass mortality event in the LIS area.

Since 1999, lobster landings in New York, Connecticut, and Rhode Island have fallen significantly, from approximately 17 million pounds in 1998 and 1999 to 7 million pounds in 2002. In February 2003, the ASMFC took emergency action to increase the minimum gauge size for lobsters in LMA 2 on an accelerated time scale and initiated action to rebuild the lobster stock in Area 2 through the development of Addendum IV. Addendum IV was approved in December 2003.

The primary measures outlined in Addendum IV for LMA 2 established a multi-state effort control program for LMA 2, including a limited entry program and individual trap limits based on historic participation, a prohibition on the issuance of new LMA 2 permits, a conservation tax for all trap transfers, and new minimum gauge sizes.

Addendum IV also incorporated an accelerated trap reduction program and a transferable trap program for Area 3. This program allows Area 3 lobster fishermen to transfer traps to other lobster fishermen. Along with other measures, the LMA 3 transferability program established an overall trap cap of 2,600 traps in LMA 3 and a two-tiered conservation tax (10 percent or 50 percent) on the purchase of transferable traps, with the higher conservation tax applied for transferring traps when the purchaser owned more than 2,100 traps.

Addendum V, approved by the ASMFC in March 2004, amended the overall trap cap for LMA 3 set by Addendum IV based on comments gathered at public hearings expressing concern that the overall trap cap of 2,600 may be too high. Addendum V includes an LMA 3 overall trap cap of 2,200 traps, with the higher conservation tax imposed when the purchaser owns more than 1,800 traps.

[40] $F_{10\%}$ is the fishing mortality rate that will keep the spawning stock biomass at a level that will produce 10% of the eggs that a non-fished population would produce.

Addendum VI, approved by the ASMFC in February 2005, replaces two of the LMA 2 effort control measures of Addendum IV: permits and the historic participation eligibility period. No new LMA 2 permits will be distributed after December 31, 2003. In addition, to qualify for an LMA 2 permit endorsement, a permit holder must document landings between January 1, 1999 and December 31, 2003.

Addendum VI also suspended implementation of a previously approved effort control plan for Area 2 specified in Addendum IV. Prior to implementation of the LMA 2 effort control plan, it became apparent that the plan was ineffective at controlling trap growth over current levels. The specific problems identified in the plan were two-fold: the aggregate allocations were too liberal – far beyond the recent levels fished – and the individual trap allocation criteria were considered arbitrary. In early 2005, the ASMFC began the development of Addendum VII. The ASMFC directed all jurisdictions with LMA 2 permit holders to work with the LMA 2 industry to modify components of the effort control plan so that all jurisdictions will be capable of implementing the plan specifics and to ensure that it will not allow effort to increase if and when the resource recovers in LMA 2.

Addendum VII, approved by the ASMFC in November 2005, established a multi-state effort control program for LMA 2 to cap effort (traps fished) at recent levels (2001-2003) and allow adjustments in traps based on future stock conditions. The current LMA 2 plan attempts to capture the attrition from the fishery caused by the stock decline, thereby preventing a return of overall fishing levels to the historic highs of the late 1990s. The addendum also rescinded the LMA 2 minimum gauge increases approved in Addendum IV.

Based on recommendations from a peer-reviewed stock assessment in January 2006, the ASMFC approved Addendum VIII in May 2006. Addendum VIII establishes new biological reference points to determine the stock status of the American lobster resource. This addendum also expands the mandatory coast-wide monitoring and reporting requirements of the Interstate FMP to improve the ability of scientists and managers to assess and manage the lobster fishery.

The ASMFC approved Addendum IX in October 2006. Addendum IX establishes a conservation "tax" on a program that permits the transfer of trap allocations between holders of LMA 2 permits. The tax imposes a 10 percent passive reduction in traps on each transfer event. Thus, for every 100 trap tags transferred, 10 will be retired, and the overall cap on traps in LMA 2 will be reduced accordingly.

The ASMFC approved Addendum X in February 2007. Addendum X establishes consistent monitoring and reporting criteria for the lobster fishery and is designed to improve understanding of the productivity of the lobster resource. Beginning January 1, 2008, it will require reporting on landings by all lobster dealers, as well as reporting on landings and vessel activity by a minimum of 10 percent of active harvesters, with the expectation that, in time, 100 percent of license holders will report.

Addendum XI, approved in May 2007, established a time frame for rebuilding the Southern New England (SNE) lobster stock, as well as setting management measures for Lobster Conservation Management Areas 2, 3, 4, 5, and 6. The addendum also creates a species-specific

mechanism of ensuring that a state meets its obligations under the plan in a way that minimizes the probability that a state's delay in complying does not adversely affect other states' fisheries or conservation of the resource.

Amendment 3 to the FMP for American Lobster established limited entry controls on fishing effort in all LMAs except LMA 1. Each permit holder may fish in each LMA based on rules regarding their permit's fishing history. Transferability programs were developed under Amendment 3 as well. Addendum XII, approved in February 2009, addresses issues that arise when fishing privileges are transferred, either when whole businesses are transferred, when dual state/Federal permits are split, or when individual trap allocations are transferred as part of a trap allocation transferability program.

Addendum XIII, approved in May 2008, repealed the 2008 deadline to meet the goal of reducing by 20% the number of traps allowed to be fished as mandated under Addendum III. Addendum III mandated a 20% reduction from 1998 levels of traps fished in the Outer Cape LMA to help meet lobster egg production goals and objectives.

Addendum XIV, approved in May 2009, lowered the trap transfer cap from 2,200 to 2,000 traps. It was thought that given the competitive nature of the fishery in LMA 3, it is expected that once transferability is implemented, all fishing entities will elect to fish the highest number of traps to remain competitive. This could lead many who have never fished a larger allocation to buy up to the trap cap of 2,200 traps (under the previous regulation). There were concerns for increased costs and overhead and consolidation in a fishery where only a certain number of traps are allocated. The LCMT recommended that the Board lower the trap cap to address these concerns. The trend of the management process has been to fish fewer traps, and the LCMT considered this a positive move toward the future. This Addendum lowers the trap transfer cap from 2,200 to 2,000 traps.

Approved in November 2009, Addendum XV maintains the historic level of trap fishing effort and curtails a potential influx of new Federal lobster vessels in the LMA 1 EEZ fishery. The addendum limits entry of vessels which have not fished with traps in Area 1 in the past from fishing in Area 1 with traps in the future.

The procedures for adopting and implementing new reference points in each of the three lobster stocks was approved in May 2010 via Addendum XVI.

Addendum XVII, approved on Feb 7, 2012, established area specific management measures for LMAs 2, 3, 4, 5 and 6 as the first step in initiating Southern New England (SNE) stock rebuilding. The measures are intended to reduce fishing exploitation on the SNE stock by 10% starting in July 2013 in response to the stock's depleted condition, which has been at low levels of abundance and experiencing persistent low recruitment since 2002.

Addendum XVIII, approved on August 9, 2012, establishes a consolidation program for LMA 2 and 3 to address latent effort by reducing the overall number of traps allocated. It is estimated that latent effort is 40% and 30% in LMAs 2 and 3, respectively. Implementation of the Addendum's measures is contingent upon NMFS implementation of transferability and trap reduction rules for Federal waters.

A few addendums have been passed since the DEIS published including:

- Addendum XVIX, approved on February 19, 2013 modified the conservation tax in LMA 3.
- Addendum XX, approved in May 2013, established an agreement between the offshore lobster fishery and sector trawl fishermen for bottom-sharing in Closed Area 2 in order to protect large concentrations of egg-bearing females and prevent gear conflicts.
- Addendum XXI, approved in August 2013, Addendum XXII, approved in October 2013, proposed to scale the SNE fishery to the diminished size of the resource with an initial goal of reducing qualified trap allocation by at least 25 % over a five to ten year period of time.

Regulations to Reduce Incidental Takes of Protected Species

The lobster trap/pot fishery in the Gulf of Maine and Mid-Atlantic is listed as a Category I fishery due to interactions with marine mammals, particularly the endangered North Atlantic right whale. The lobster fishery was regulated under the first ALWTRP, which went into effect in 1997 as an Interim Final Rule (62 FR 39157). The regulations contained in this rule were updated in February 1999, and again in December of 2000. In January 2002, NMFS modified the ALWTRP and published three rules that (1) mandate further modifications to commercial fishing gear; (2) establish a system for restricting fishing in areas where unexpected aggregations of right whales are observed; and (3) establish restricted areas based on annual, predictable aggregations of right whales. In October 2007, NMFS issued a final rule implementing broad-based gear modifications. This broad-based gear modification strategy included expanded weak link and sinking groundline requirements; additional gear marking requirements; changes in boundaries; seasonal restrictions for gear modifications; expanded exempted areas; and regulatory language changes for the purposes of clarification and consistency. This final rule was extended and clarified in September 2008 . The action considered here will represent the sixth modification of regulations under the ALWTRP for the lobster fishery.

In addition to regulations implemented under the ALWTRP, it is possible that the lobster fishery will be made subject to future regulations promulgated under the Strategy for Sea Turtle Conservation and Recovery in Relation to Atlantic Ocean and Gulf of Mexico Fisheries (Sea Turtle Strategy). In June 2001, NMFS released a strategic plan to address the incidental capture of endangered or threatened sea turtle species in state and Federal fisheries in the Atlantic and Gulf of Mexico, including Kemp's ridley, loggerhead, and leatherback sea turtles. The general strategy is to address sea turtle bycatch by gear type. Based on species distribution and foraging patterns, Kemp's ridley sea turtles are not likely to interact with lobster gear. In contrast, loggerhead and leatherback turtles have been known to become entangled in lobster trap/pot gear; however, the level of observed take is not expected to appreciably reduce the likelihood of both the survival and recovery of either sea turtle species (NMFS, 2001a).

9.4.3.2 Northeast Multispecies

Commercial fishing vessels landed a total of 81.5 million pounds in the multispecies groundfish fishery in the Northeastern U.S. in 2011. Of the total landings, 8.9 million pounds (ten percent) were caught using gear that is potentially subject to the requirements of the ALWTRP. Approximately 13 percent of the fishery's $102.1 million revenue is attributable to

fish caught with ALWTRP-regulated gear. In 2011, about 204 vessels (6.7 percent) held Northeast multispecies permits that indicated ALWTRP-regulated gear (gillnets, pots/traps) as the primary gear type.

Management History

The Northeast Multispecies Fishery Management Plan (Groundfish FMP) governs commercial fishing in New England and Mid-Atlantic waters for fifteen species (and 24 stocks) of demersal fish. These species are grouped together under one FMP and managed by the New England Fishery Management Council (the Council) because the fish share common habitats and are often caught at the same time. For a complete description of these species, see Chapter 4.

During the late 1980s, a dramatic increase in the number and size of fishing vessels, deployment of bigger gear, and the development of electronic aids such as fishfinders and navigation equipment contributed to greater efficiencies and intensity in the groundfish fishery. The result was a precipitous drop in landings during the 1980s and a complete collapse of the fishery in the early 1990s, when annual landings reached the lowest levels ever recorded.

Initial Federal efforts at managing the groundfish fishery included annual and quarterly catch quotas for cod, haddock and yellowtail flounder; quota allocations by vessel class; and trip limits. The quota and trip limits imposed during the inception of the Groundfish FMP led to frequent fishery closures affecting one or more segments of the fishing fleet. This form of management frequently imposed economic hardship on the industry, thereby eroding support for the management measures. This in turn led to widespread misreporting and non-reporting by the industry as a way to circumvent the regulations.

Starting in the early 1980s, a new management program was implemented through the 1982 Interim Fishery Management Plan. This plan, and the next several groundfish actions (through Amendment 4 in 1991) managed the groundfish fishery (now expanded to include 13 species) primarily through seasonal closures and minimum mesh and fish size restrictions. These measures, however, proved inadequate, as the condition of the resources, especially cod, haddock and yellowtail flounder, continued to decline to record low levels.

To end overfishing and address the severe decline in the groundfish resource as well as the continuing influx of more and larger vessels to the fishery, the Council developed Amendment 5 to the FMP. This action, which became effective in 1994, implemented a moratorium on permits as well as an effort-control program that reduced a vessel's days-at-sea allocation by 50 percent over a five- to seven-year period. Amendment 5 became the first action to restrict both access and effort in the groundfish fishery. The FSEIS for Amendment 5 determined that this action might have significant effects on a substantial number of small entities, specifically those vessels less than 45 feet, which, at the time, accounted for 36 percent of the qualified vessels.

Despite the severity of the measures implemented in Amendment 5, stocks continued to decline and a "Special Advisory" was issued by the Northeast Fisheries Science Center in 1994 stating that Amendment 5 was "too little too late." In December 1994, NMFS implemented an

emergency action to close, on a year-round basis, three large areas (Closed Area I, Closed Area II, and the Nantucket Lightship Closed Area) to all vessels capable of catching groundfish while the Council developed a new plan, Amendment 7 to the Groundfish FMP.

Framework 9, implemented in 1995, extended the 1994 emergency action permanently. In addition, Framework 9 also prohibited all small mesh fisheries in the Gulf of Maine, Georges Bank, and Southern New England Regulated Mesh Areas, unless it could be determined that the fishery had a bycatch rate of less than five percent for regulated groundfish species.

Amendment 7, implemented in 1996, represented the most comprehensive program in a ten-year long sequence of management actions designed to rebuild and manage the Northeast multispecies fishery. Building on the management system implemented in Amendment 5, Amendment 7 implemented controls on the number and size of vessels that may fish for regulated multispecies, accelerated the Amendment 5 days-at-sea (DAS) effort-reduction schedule, and placed new restrictions on the size of the fish that can be caught. In addition, Amendment 7 expanded the five percent bycatch rule established in Framework 9 to include a prohibition on all non-DAS fisheries, further reducing the bycatch of groundfish regulated species. These actions have had a positive impact on the status of several species of groundfish, especially in the Georges Bank area, and landings have increased as a result. Similar to Amendment 5, the FSEIS for Amendment 7 concluded that the proposed action would have significant impacts on a substantial number of small entities in the short term. Projected reductions in overall revenues ranged from ten to 25 percent in the first three years.

Following Amendments 7 and 9, NMFS has approved several framework adjustments implementing further restrictions on the groundfish fishery. Frameworks 20, 24, 25, 26, 27, 30, 31, and 33 all implemented additional management measures to protect, in particular, the Gulf of Maine cod stock. These measures included new Gulf of Maine seasonal and year-round closures, gillnet effort-reduction measures (including limits on the number of allowable nets), and adjustments of the Gulf of Maine cod trip limits.

In August 2002, NMFS implemented interim management measures as a result of the Federal Court decision in the case of Conservation Law Foundation, et al. V. Evans, et al. The suit alleged that Framework Adjustment 33 violated the overfishing, rebuilding, and bycatch provisions of the MSA and Amendment 9 to the Fishery Management Plan by approving groundfish catch levels that were too high and risked further depletion of groundfish populations. On March 1, 2002, NMFS submitted to the Court a proposed remedy to bring the FMP into full compliance with the SFA, the Magnuson-Stevens Act and all other applicable law as quickly as possible. The Settlement Agreement provides protection to the Northeast multispecies fishery while NMFS, the Council, and the public develop long-term measures to comply with the SFA and other applicable laws. Significant new management measures implemented under the 2002 interim final rule include:

- a freeze of DAS at the highest annual level used during fishing year 1996-2000 and a 20 percent reduction from that level;

- increased gear restrictions for certain gear types;

- modifications and additions to the closed areas; and

- limits on yellowtail flounder catch.

Following implementation of the interim final rule, NMFS published two emergency actions that extended the interim final rule until the final rule implementing Amendment 13 took effect on May 1, 2004 (see below).

Amendment 13

On January 29, 2004, NMFS published proposed regulations to implement measures included in Amendment 13 to the Northeast Multispecies FMP, the final phase of the Settlement Agreement described above. The principal objectives of the amendment include rebuilding overfished stocks, ending overfishing, reducing bycatch, and minimizing the impact of the fishery on fish habitat and protected species. The public comment period for this rule ended on February 27, 2004 (69 FR 4362). Full implementation of the final rule for Amendment 13 occurred on May 1, 2004.

At the heart of Amendment 13 are the proposed rebuilding programs for overfished stocks of the groundfish fishery. Amendment 13 relies on DAS allocations (the time available to be fished) to reduce fishing mortality to targeted levels.

Under Amendment 13, a vessel's DAS allocation is first divided into two classes: used DAS, referred to as "effective effort," and unused DAS. A vessel's level of "effective effort" is calculated as the maximum DAS used by that vessel in any single fishing year from qualifying fishing years 1996 through 2001. Qualifying years include only those in which the vessel landed a total of 5,000 pounds or more of regulated groundfish species. Unused DAS is equal to the difference between a vessel's Amendment 7 DAS allocation and a vessel's level of "effective effort." Since the implementation of the DAS mechanism in Amendment 5, a large portion of the total number of allocated DAS were not used. Such unused DAS is known as "latent effort" and represents potential future fishing effort. Amendment 13 takes actions to reduce unused DAS to ensure that gains made in rebuilding overfished stocks are not lost as a result of the future use of unused DAS. Once effective effort is calculated, a vessel's Amendment 13 DAS is divided into three categories:

- Category A — effective DAS available for use;

- Category B — effective DAS that can only be used to target "healthy" groundfish stocks identified by NMFS; and

- Category C — latent (unused) DAS, equal to the difference between a vessel's Amendment 7 DAS allocation and its number of effective DAS.

Upon implementation of Amendment 13, all Category B and C DAS were placed in a reserve account for each vessel. Category A DAS are available to fish for any groundfish

species. In fishing years 2004 and 2005, the DAS allocation was limited to 60 percent of effective effort, or 60 percent of the total Category A DAS allocation. Under the terms of Amendment 13, Category B DAS may only be used to target "healthy stocks" as designated by the Council. As rebuilding occurs, the ratio of Category A to Category B DAS may be adjusted, and Category C DAS may be allowed back into the fishery subject to a conservation tax.

In fishing years 2006 through 2008, Category A DAS will be further limited to 55 percent of effective effort, and in 2009, Category A DAS will be limited to 45 percent of effective effort. These default measures may be adjusted based on stock conditions.

The limits on Category A DAS reduced the number of DAS that can be fished on any stock from about 71,000 in fishing year 2003 to about 41,000 in fishing year 2004, a reduction of approximately 42 percent. Actual use in 2003 was 42,118 DAS, and actual use in fishing year 2004 was 32,973 DAS.

In addition to the changes in DAS allocations, Amendment 13 included the following significant measures:

- Continuing the current year-round closures in Closed Area I, Closed Area II, the Western Gulf of Maine, Cashes Ledge, and Nantucket Lightship Closed Areas, along with rolling closures;

- Implementing additional areas closed to bottom tending mobile gear to protect EFH;

- Increasing the Gulf of Maine cod trip limit;

- Decreasing the Georges Bank cod trip limit;

- Modifying seasonal yellowtail flounder trip limits;

- Continuing gear restrictions implemented in August 2002 with some modifications. Gear restrictions implemented under Amendment 13 included an increase in mesh size for trawl and gillnet gear, a reduction in the number of gillnets that can be fished, and a removal of the restriction on the number of trip gillnets in the Gulf of Maine and Georges Bank; and

- Continuing commercial minimum fish sizes implemented in August 2002, when the cod minimum size was increased.

On May 1, 2006, NMFS implemented an Emergency Interim Final Rule to further reduce the fishing mortality rate for specific groundfish species, prevent overfishing, and maintain the rebuilding program of the FMP (71 FR 19348). The emergency action included differential DAS counting and reduced trip limits for specific species, among other provisions. In addition, the action continued two programs that would have expired on April 30, 2006: the DAS Leasing Program and a modified Regular B DAS Program on Georges Bank. These changes were largely made permanent through Framework Adjustment 42, implemented November 22, 2006 (71 FR

62156). Principally, Framework 42 focuses on two measures: (1) stricter trip limits on species of flounder, white hake, and Gulf of Maine cod; and (2) a system of differential DAS counting for gillnet vessels. Under the differential counting system, one DAS counts as two for inshore areas in the Gulf of Maine and the offshore areas of Southern New England and the Mid-Atlantic. Other measures implemented under Framework 42 include:

- Continuation of the DAS leasing program;
- Continuation of the Regular B DAS Program (expanded to include all areas, not just Georges Bank);
- Mandatory use of Vessel Monitoring Systems (VMS) for all groundfish vessels; and
- Approval of the Fixed Gear Sector on Georges Bank.

Amendment 16 was implemented on May 1, 2010. The action provides a broad range of measures to target healthy stocks, mitigate the economic impacts of the measures, and improve administration of the fishery. The measures include:

- Development of Annual Catch Limits and Accountability Measures;
- Implementation of additional sectors for the commercial fishery;
- Reductions in DAS allocations and changes to DAS counting methods to achieve fishing mortality targets;
- Addition of Atlantic wolfish to the management unit of the FMP;
- An allocation of certain groundfish stocks between the commercial and recreational fisheries;
- Revisions to mortality targets to achieve rebuilding based on the recent stock assessments. Formal rebuilding programs are proposed for witch flounder, GB winter flounder, pollock, and Atlantic wolfish;
- An increase in the minimum size of Atlantic halibut to 41 inches in order to match the median length at maturity for female haddock in the Gulf of Maine;
- Certain changes to special management programs are proposed in this amendment. Category B DAS would no longer be able to be used to target pollock. The CAI Hook Gear Haddock SAP would have an extended season and expanded area. The Eastern U.S./Canada Haddock SAP would be reauthorized indefinitely, with the additional rule that trawl gear fishing in the SAP can use codends with a minimum mesh size of six inch square or diamond mesh. The CAII Yellowtail Flounder SAP would be modified to allow targeting of GB haddock even when the area is not open for targeting yellowtail flounder. Finally, the SNE/MA Winter Flounder SAP would be suspended until stock conditions would warrant its re-implementation; and
- Not listed here are additional changes to improve administration of the fishery.

Following Amendment 16 was implementation of Framework 44 (effective May 2010) which included the following measures:

- Revision of the Gulf of Maine cod and pollock trip limits implemented in Amendment 16 and implementation of a Georges Bank yellowtail flounder trip limit of 2,500 lb;
- Regional Administrator authority to implement inseason trip limits and/or differential DAS counting for any groundfish stock in order to prevent catch from exceeding the ACL;
- Specification of overfishing levels, acceptable biological catch levels, and ACLs for all 20 groundfish stocks in the FMP for FY 2010 through 2012, as well as the Total Allowable Catches (TACs) for stocks managed by the U.S./Canada Resource Sharing Understanding;
- Allocation of zero trips to the Closed Area II Yellowtail Flounder SAP for 2010;
- Restriction of common pool vessels to using Category A DAS in the Eastern U.S./Canada Haddock SAP;
- Delayed the opening of the Eastern U.S./Canada Area for trawl vessels until August 1; and
- Technical corrections to Amendment 16 regulations.

A sector rule was implemented to specify management of fishery sectors as provided for in Amendment 16. The sector rule includes the following measures:

- Approval of the sector operations plans and contracts from the Northeast Fishery Sectors II through XIII, the Sustainable Harvest Sector, the Tri-State Sector, the Northeast Coastal Communities Sector, the Georges Bank Cod Fixed Gear Sector, and the Port Clyde Community Groundfish Sector; and
- Allocation of annual catch entitlement of certain NE multispecies stocks to each of the approved sectors based on the cumulative landing histories of participating vessels.

Framework Adjustment 45, implemented in May 2011, revised the biological reference points and stock status for pollock, updated ACLs for several stocks for FYs 2011–2012, adjusted the rebuilding program for Georges Bank (GB) yellowtail flounder, increased scallop vessel access to the Great South Channel Exemption Area, approved five new sectors, modified the existing dockside and at-sea monitoring requirements, revised several sector administrative provisions, established a Gulf of Maine (GOM) Cod Spawning Protection Area, refined measures affecting the operations of NE multispecies vessels fishing with handgear, and approved the FY 2011 U.S./Canada Management Area total allowable catches (TACs).

Framework Adjustment 46, which became effective September 14, 2011, was developed to address haddock catch in the Atlantic herring fishery. The rule increases the haddock incidental catch cap allocated to the Atlantic midwater trawl herring fishery to 1% of the GB haddock ABC and to 1% of the GOM haddock ABC. In addition, this action would modify the cap AMs applicable to the Atlantic herring fishery such that, upon reaching the haddock incidental catch cap, the midwater trawl herring fleet could not catch or land herring in excess of the incidental catch limit (2,000 lb/907.2 kg) in or from the appropriate haddock stock area. This action is intended to allow the herring fishery to fully use available herring quota, while providing incentives for the midwater trawl fishery to minimize haddock bycatch.

The New England Fishery Management Council (NEFMC) finalized the development of Framework Adjustment 47 to the NE Multispecies FMP, which became effective in March 2012. This action revised the status determination criteria for three winter flounder stocks and Gulf of Maine cod; 2) revised the Georges Bank (GB) yellowtail flounder rebuilding strategy; 3) changed the administration of the scallop fishery yellowtail flounder annual catch limits (ACLs); 4) adopted acceptable biological catches and ACLs for FY 2012 – 2014 for 10 stocks; 5) removed the cap that limits scallop vessel catch of yellowtail flounder in the GB access areas; 6) eliminated the restricted gear areas for common pool vessels adopted in Amendment 16; 7) adopted a zero-possession proactive accountability measure (AM) for Southern New England/Mid-Atlantic winter flounder and Atlantic wolfish; 8) adopted area-based AMs for both windowpane flounder stocks and ocean pout; and 9) prohibited possession of Atlantic halibut if the ACL is exceeded.

NMFS is undertaking a Secretarial Amendment to the NE Multispecies FMP to implement ACLs and AMs for the small-mesh multispecies fishery before the statutory deadline in the Magnuson-Stevens Act (by the end of fishing year 2011). The Secretarial Amendment only will establish ACLs and AMs, and is not expected to modify any of the management measures, including the exemption programs and trip limits. The Secretarial Amendment is intended to implement a subset of the NEFMC's ACL amendment's alternatives. It is expected that the NEFMC's amendment (Amendment 19) to implement ACLs and AMs will replace the measures in the Secretarial Amendment, if approved.

The NEFMC is also currently in the early stages of developing Amendment 18, which is expected to be implemented in May 2014. This action would address concerns related to preventing excessive control or ownership of fishing privileges (e.g., vessels, fishing permits, DAS, fishing quotas, potential sector contributions, ACE, sector allocations), maintaining the diversity of the fleet, addressing impacts of market forces on a highly regulated industry, and maintaining fishery infrastructure and fishing ports throughout New England.

The NEFMC recently implemented Amendment 19 to bring the small-mesh fishery into compliance with the Magnuson-Stevens Act's requirements for ACLs and AMs. The Final Rule published in April 2013 and will be effective in May 2013. Amendment 19 would modify some of the management measures, including trip limits. This action also established a wider-range of AMs, such as incidental trip limit triggers. The action will not include a limited access program for the small-mesh fishery. Other NE Multispecies FMP actions, including Framework 48, may ease restrictions on accessing previously closed areas. However, potential marine mammal impacts are considered on a case-by-case and overall fishing effort is unlikely to increase in these areas.

Regulations to Reduce Incidental Takes of Protected Species

Of the gear types typically used to catch multispecies finfish, sink gillnets have resulted in the greatest number of listed cetacean takes. Data indicate that gillnet gear has seriously injured right, humpback and fin whales by hampering mobility and feeding, causing chafing injuries, or by drowning. As a result, the Northeast (multispecies) sink gillnet fishery and the Mid-Atlantic coastal gillnet fishery are both listed as Category I fisheries.

The Northeast multispecies fishery was regulated under the first ALWTRP, which went into effect in 1997 as an Interim Final Rule (62 FR 39157). The regulations contained in this rule were updated in February 1999 and again in December of 2000. In January 2002, NMFS modified the ALWTRP and published three rules that (1) mandate further modifications to commercial fishing gear; (2) establish a system for restricting fishing in areas where unexpected aggregations of right whales are observed; and (3) establish restricted areas based on annual, predictable aggregations of right whales. In October 2007, NMFS issued a final rule implementing broad-based gear modifications. This broad-based gear modification strategy included expanded weak link and sinking groundline requirements; additional gear marking requirements; changes in boundaries; seasonal restrictions for gear modifications; expanded exempted areas; and regulatory language changes for the purposes of clarification and consistency. This final rule was extended and clarified in September 2008. The action considered here will represent the sixth modification of regulations under the ALWTRP for the Northeast multispecies fishery.

The Harbor Porpoise Take Reduction Plan (HPTRP) prohibits the setting of gillnets in certain areas for selected time periods. This includes a prohibition on the use of large mesh gillnet gear west of 72E30' in southern Mid-Atlantic waters (Maryland, Delaware, Virginia and North Carolina) from February 15 through March 15. Although the prohibition is meant to prevent harbor porpoise takes in gillnet gear, it should also be of benefit to sea turtles by reducing gillnet effort off of North Carolina during this time period, when sea turtles are present.

9.4.3.3 Monkfish

Roughly 10.6 million pounds of monkfish were landed in the Northeastern U.S. in 2011. Gillnets or trawls were used to catch the greatest percentage of monkfish, 62 percent and 19 percent. The ex-vessel value of monkfish landings in the Northeast totaled approximately $26.2 million in 2011. During 2011, a total of 479 vessels (approximately 18.9 percent of all monkfish vessels) held permits that indicated ALWTRP-regulated gear as their primary gear.

Management History

Significant commercial landings of monkfish were not recorded until the late 1970s to 1980s, when they averaged four thousand metric tons per year. Landings doubled from these levels in the late 1980s to approximately 10,000 metric tons, then increased dramatically throughout the 1990s, with annual landings reported at over 26,000 metric tons from 1995 to 1997.[41] The correlation between landings and price per pound was even stronger in the emerging market for monkfish livers. Between 1982 and 1995, annual monkfish liver landings rose from 0.02 to 1.10 million pounds as the monkfish liver price jumped from $1.00 to $5.00 per pound.

The status of the monkfish resource was re-assessed by the 23rd Stock Assessment Workshop (1997). This assessment concluded, "[t]he stock [was] at low levels of biomass and

[41] Most landings (80 percent) come from incidental catch in the groundfish and scallop fisheries.

[was] over-exploited." The report highlighted the continuing trend of fewer large fish that had been observed in recent trawl surveys and in the commercial catch. It also highlighted the decline in the calculated egg production level, which it attributed to a decline in the number of large fish in the population. Based on this evidence, it was recommended that the Council take measures to reduce fishing mortality throughout the species' range and prevent any redirection of displaced effort from other fisheries, which would diminish the prospects of rebuilding the stock. Under the Magnuson-Stevens Fishery Conservation and Management Act of 1976, the results of the 1997 stock assessment required the Council to prepare and submit an FMP by September 30, 1998, that would stop overfishing and rebuild the monkfish stock within ten years or less.

To meet the requirements of the MSA, the Council developed an FMP to stop overfishing within four years of implementation (2002) and promote rebuilding to the biomass targets within ten years (2009). The final Monkfish FMP (64 FR 54732), effective in November 1999, relies primarily on the implementation of a series of annual days-at-sea allocations over four years to reach these objectives. The plan allocates 40 days-at-sea to all vessels that qualify for a limited access permit in Years 1, 2, and 3 (1999-2001). Unless these allocations and other restrictions on size limits and bycatch stop overfishing and achieve the annual rebuilding mortality rates, no days-at-sea will be allocated in Year 4 (2002) or subsequent years of the FMP. To control the level of effort, the management program also applies trip limits to all monkfish days-at-sea.

The Council's Monkfish Monitoring Committee (MMC) conducted a review of the status of the fishery during Year 3 of the FMP. The MMC review process began in Fall 2001, utilizing the most recent stock assessment results, landings data, and resource survey data to evaluate the status of the fishery. The MMC concluded that the condition of the monkfish resource was improving, and recommended that the Council develop a framework action to extend for one year the existing 40 DAS management measures (Framework 1 to the Monkfish FMP). However, NMFS rejected Framework 1 because it did not comply with the fishing mortality rate threshold specified in the original plan. In order to take into account the improved status of the fishery, NMFS issued an emergency action to amend the Monkfish FMP, incorporate the results of the most recent stock assessments, and extend the 40 DAS measures as recommended by the MMC. NMFS approved this emergency rule in May 2002, which allowed the fishery to reopen for the remainder of the 2002 fishing year (i.e., through April 30, 2003). In the 2003 fishing year, the DAS limit remained at 40.

Amendment 2 to the Monkfish FMP incorporated updated scientific information into monkfish overfishing definitions, rebuilding targets, and management measures designed to rebuild stocks to maximum sustainable levels by 2009. Amendment 2 also reduced the overall complexity of the FMP; updated related environmental impact documents; considered modifications to the limited entry program for vessels fishing south of the North Carolina/Virginia border; and updated the plan's Essential Fish Habitat components. The final rule implementing Amendment 2 was published on April 28, 2005 (70 FR 21927) and took effect on May 1, 2005. In accordance with Amendment 2, the target TAC for FY 2006 was set at 7,737 metric tons for the Northern Fishery Management Area (NFMA), and 3,667 metric tons for the Southern Fishery Management Area (SFMA). This action also adjusted trip limits and restricted use of DAS for vessels fishing in the SFMA. The trip limits for the SFMA were reduced to 550 pounds (tail weight) per DAS for limited access Category A, C, and G vessels, and 450 pounds

(tail weight) per DAS for limited access Category B, D, and H vessels. DAS usage was restricted to 12 monkfish DAS, plus carryover, for vessels fishing in the SFMA.

The 2006 NEFMC Monkfish Stock Assessment and Fishery Evaluation (SAFE) Report reviewed the status of the monkfish resource and found that monkfish are overfished in both the northern and southern areas (NEFMC/MAFMC, 2006). In part as a response to this finding, the NEFMC in October 2006 enacted Framework 3 of the Monkfish FMP (71 FR 19348), establishing maximum incidental catch levels for monkfish while fishing for northeast groundfish. Effectively, this action prohibited vessels from using B-days (as defined in the Northeast Multispecies FMP) to catch monkfish with no limit. In addition, in 2007, the NEFMC took final action on Framework 4 of the Monkfish FMP. Framework 4 contains a revised method for establishing TACs, and uses this method to establish target TACs of 5,000 metric tons and 5,100 metric tons for the NFMA and SFMA, respectively, for the final three years of the rebuilding plan (FY 2007-FY 2009), unless otherwise modified by the Monkfish Monitoring Committee. The proposed target TAC for the NFMA is 35 percent lower than the target TAC in effect for FY 2006, and 67 percent lower than the average of target TACs in effect since FY 2002. The proposed target TAC for the SFMA is 39 percent higher than the target TAC in effect for FY 2006, but is 33 percent lower than the average of the target TACs in effect since FY 2002.

In 2007, the Northeast Data Poor Stocks Working Group (DPWG) completed a monkfish stock assessment and recommended revisions to the biomass reference points. The Councils adopted the new reference points as Framework Adjustment 5 to the Monkfish FMP, implemented in May 2008. Also in 2007, the Magnuson-Stevens Act was reauthorized (MSRA) and revised to include, among other things, the requirement that all FMPs establish Annual Catch Limits (ACLs) and measures to ensure accountability (AMs). For stocks not subject to overfishing, such as monkfish, the MSRA set a deadline of 2011 for the implementation of ACLs and AMs. In 2009, NMFS published revised National Standard 1 Guidelines which the Councils have used to develop ACLs and AMs for all FMPs.

In May 2011, Amendment 5 became effective which implemented the MSRA mandated ACLs and AMs and specified DAS and corresponding trip limits. Amendment 5 also modified the Research Set Aside Program, implemented a provision to minimize bycatch resulting from trip limit overages, and enabled vessels to land monkfish heads separate from the body. However, in 2010, after the Council submitted Amendment 5, the Northeast Regional Stock Assessment Review Committee completed a new monkfish stock assessment. Due to the newly available science, the DAS and trip limit specifications for the NFMA were disapproved in Amendment 5. To address the disapproved measures, NMFS proposed Framework Adjustment 7, effective October 2011. Based upon the newly available science, Framework Adjustment 7 set the specifications for the NFMA and adopted biomass reference point for both areas. The Northeast Regional Stock Assessment Review Committee also declared that neither the northern nor southern stock are considered overfished nor is overfishing occurring.

Furthermore, the Councils released a catch shares scoping document in late 2010 and stated their intent to consider catch shares in the monkfish fishery. In conjunction with the scoping document, the Councils held a series of public meetings on catch shares soliciting public comment through March 7, 2011. The catch share Amendment, Amendment 6, has not been

initiated and is still being discussed by the Councils. At its January 2014 meeting the Council discussed Framework Adjustment 8 to establish new specifications for the fishery for 2014-2016.

Regulations to Reduce Incidental Takes of Protected Species

The monkfish fishery is a component of the Northeast sink gillnet fishery and Mid-Atlantic coastal gillnet fishery, both of which are listed as Category I fisheries. The preceding discussion of the multispecies gillnet fishery also covers the protected species regulations affecting the monkfish fishery.

In addition, to reduce the impact of large-mesh gillnet fisheries in the Mid-Atlantic, NMFS published a final rule in December 2002 (67 FR 71895) which enacted a seasonally adjusted gear restriction by closing portions of the Mid-Atlantic Exclusive Economic Zone (EEZ) to fishing with gillnets with a mesh size larger than 8-inch stretched mesh. Gillnets with mesh sizes larger than 8 inches are known to be more likely to catch sea turtles, and were the gear of choice in the historical sea turtle fishery.

9.4.3.4 Spiny Dogfish

A total of 20.9 million pounds of spiny dogfish were landed in the Northeastern U.S. in 2011. Sink/anchor gillnets and bottom trawls were used to catch the greatest percentage of spiny dogfish, 60.2 percent and 10.36 percent, respectively. The ex-vessel value of spiny dogfish landings in the Northeast totaled $4.5 million in 2011. A total of 584 vessels (21.3 percent) holding spiny dogfish permits in 2011 indicated ALWTRP-regulated gear (predominantly gillnets) as the primary gear.

Management History

For most of the first two decades of extended jurisdiction under the MSA, the spiny dogfish was considered to be an "under-utilized" species of relatively minor value to the domestic fisheries of the U.S. East Coast. With the decline of the traditional groundfish catch, an increase in directed fishing for dogfish resulted in a nearly ten-fold increase in landings from 1987 to 1998.

The lack of any regulations pertaining to the harvest of spiny dogfish in the U.S. EEZ combined with the recent rapid expansion of the domestic fishery led the Mid-Atlantic and New England Fishery Management Councils (Councils) to develop a management plan for the species. The recent fishery expansion in combination with the removal of a large portion of the adult female stock has resulted in the species being designated as overfished (NEFSC, 1998).

Initial management actions to regulate the spiny dogfish fishery began in 1998 with the approval of a draft Spiny Dogfish FMP developed by the New England Fishery Management

Council (NEFMC) and the Mid-Atlantic Fishery Management Council (MAFMC). The final rule was approved by NMFS on September 29, 1999 and became effective on April 3, 2000. The FMP specifies a coastwide target fishing mortality rate of F = 0.03, which translates to an initial quota of four million pounds. The annual quota is split on a semi-annual basis, with Period I extending from May 1 through October 31 and Period II from November 1 through April 30. To control the level of effort, the management program also imposes possession limits of 600 and 300 pounds for Periods I and II, respectively.

In recent years, there has been a shift in the spiny dogfish fishery from an offshore fishery to an inshore fishery. In 1998, state water landings accounted for 67 percent of total spiny dogfish landings. Given this trend, the Federal FMP's objective of rebuilding the spiny dogfish resource could not be achieved without addressing fishing effort in state waters. In June 1999, the Atlantic States Marine Fisheries Commission (ASMFC) convened a Spiny Dogfish and Coastal Shark Management Board (Board) to begin development of an interstate fishery management plan. The Board took emergency action in August 2000 to close the spiny dogfish fishery in state waters when there is a closure in Federal waters. The intent of the emergency action was to:

- prevent the overharvest of the spiny dogfish fishery;
- prevent the unregulated portion of the spiny dogfish fishery in state waters from undermining the Federal FMP; and
- provide additional time for the ASMFC to develop the interstate spiny dogfish FMP, which would provide a framework for managing the fishery in state waters.

On November 21, 2002, the ASMFC approved the Interstate Fishery Management Plan for the Spiny Dogfish with an implementation date of May 1, 2003. The FMP complements the existing Federal regulations and adopts the target and threshold fishing mortality rates specified in the Federal plan.

Since 2003, the Federal FMP has maintained a spiny dogfish quota of 4 million pounds. In state waters, the ASMFC reduced the initial 8.8 million pound quota set in 2003-2004 to 4.4 million pounds; the following year, the quota was reduced to 4 million pounds. The TAC limits specified for 2006 maintained the limits established for 2005. In addition, the FMPs were modified in 2006 (Framework 1 for the NEFMC/MAFMC FMP and Addendum 1 for the ASMFC FMP) to allow annual specifications to remain in effect for up to 5 years.

The most recent stock assessment report for spiny dogfish (approved January 2007) indicates that the species is no longer overfished and that overfishing is not occurring. This has prompted the ASMFC to raise the state waters quota to 6 million pounds annually through 2009. Fifty-eight percent of this quota is allocated to the New England states, while the remaining 42 percent is allocated to waters from New York south through North Carolina.

Addendum II, approved in October 2008, established a new allocation program for the commercial spiny dogfish fishery while maintaining the conservation goals of the FMP.

In the fall of 2009, the Northeast Fisheries Science Center (NEFSC) updated the spiny dogfish stock status using the model from the 43rd Stock Assessment Review Committee (SARC), 2008 catch data, and results from the 2009 trawl survey. Based on the scientific findings, NMFS declared that the spiny dogfish stock was not overfished and overfishing was not occurring. For FY2009, state and Federal quotas were set consistently at 12 million lb. with 3,000 lb. trip limits. For FYs 2010 and 2011, state and Federal quotas were set consistently at 15 million pounds and 20 million pounds, respectively, with a 3,000 lb trip limit. The relatively low trip limits are believed to discourage a large scale directed fishery for spiny dogfish.

Framework Adjustment 2 (Framework 2) to the FMP, enacted July 24, 2009, provided for automatic incorporation of biological reference points into the FMP as they become recommended through peer-reviewed assessments. The spiny dogfish stock was formally declared rebuilt in June 2010, after new scientific information providing an official biomass target became available. As a result, the FY2010 quota slightly increased from that of FY 2009 and was set at 15 million lb. with 3,000 lb. trip limits. Through the procedure outlined in Framework 2, the 2010 spiny dogfish specifications have updated the Spiny Dogfish FMP to incorporate the new biomass reference point values.

Addendum III, approved in March 2011, dissolves the Southern Region (NY – VA) allocation established in Addendum II and sets state shares for New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina. Northern Region states, from Maine through Connecticut will continue to share 58% of the annual quota. Final measures also address overage payback, quota transfer, quota rollovers, possession limits, and a three-year reevaluation of final measures.

Addendum IV, approved in August 2012, modified the FMP to: 1) allow greater than 5% spiny dogfish commercial quota rollover from one year to the next with Board approval and 2) update the spiny dogfish overfishing definition consistent with Technical Committee (TC) recommendations.

MAFMC is undergoing public comment period for Amendment 3. Amendment 3 addresses four management issues related to management of the spiny dogfish fishery in Atlantic federal waters. Specifically, the Amendment addresses (1) adding an option for allocating a small portion of the annual commercial quota as research set-aside, (2) reviewing and updating essential fish habitat (EFH) for spiny dogfish, (3) maintaining previous year annual management measures in case of a delay in the implementation of new annual measures, and (4) modifying the existing seasonal allocation of the annual quota to minimize conflicts with the geographically allocated interstate fishery.

Regulations to Reduce Incidental Takes of Protected Species

The spiny dogfish fishery is a component of the Northeast sink gillnet fishery and Mid-Atlantic coastal gillnet fishery, both of which are listed as Category I fisheries. The preceding discussion of the multispecies gillnet fishery covers the protected species regulations affecting the spiny dogfish fishery.

9.4.3.5 Directed Shark

In the Atlantic Ocean, the directed shark fishery is most active in southern waters. The overall number of Highly Migratory Species (HMS) permits for sharks has increased between 2008 and 2011. In 2011 the number of directed shark permits in the Atlantic and Gulf of Mexico and totaled 283 while incidental shark permits totaled 330. This is an increase from 2008 where directed permits equaled 214 and incidental permits equaled 285 (NMFS 2012). Florida has the highest number of permit holders 177 (directed) and 170 (incidental).

Management History

In 1993, NMFS implemented the FMP for Sharks of the Atlantic Ocean. The Shark FMP included the management of 39 frequently caught species of Atlantic sharks separated into three groups for assessment and regulatory purposes: large coastal sharks (LCS), small coastal sharks (SCS), and pelagic sharks. Through the results from the 1992 stock assessment, NMFS classified LCS as overfished and SCS and pelagic sharks as fully fished. Management measures in this first FMP included commercial quotas for LCS and pelagic sharks, a recreational trip limit, the prohibition of "finning," and the establishment of a data collection system through mandatory trip reports, a fishery observer program, and commercial and recreational permitting requirements. Commercial quotas under the FMP were set at 2,436 metric tons and 580 metric tons for LCS and pelagic sharks, respectively. These quotas were divided into two equal half-year quotas, from January 1 through June 30 and from July 1 through December 31.

A number of problems arose in the initial year of the Shark FMP. The January to June LCS quota was exceeded shortly after implementation of the FMP, leading to the closure of that fishery on May 10, 1993. The LCS fishery was re-opened on July 1 with an adjusted quota to compensate for the overage in the first period. Within one month, the quota for the second period had been reached and the LCS fishery was closed again. To address this problem, a commercial trip limit of 4,000 pounds for LCS permitted vessels was implemented on December 29, 1993, and a control date for the Atlantic shark fishery was established on February 22, 1994. In addition, the LCS quota was increased to 2,570 metric tons based on a new stock assessment completed in 1994.

In June 1996, NMFS convened another stock assessment to examine the status of LCS stocks. The 1996 stock assessment found no clear evidence that LCS stocks were rebuilding and concluded "that recovery is more likely to occur with reductions in effective fishing mortality rate of 50 [percent] or more." In response to this information, in April 1997, NMFS reduced the LCS commercial quota by an additional 50 percent to 1,285 metric tons, and established a commercial quota for SCS of 1,760 metric tons.

On May 2, 1997, the Southern Offshore Fishing Association (SOFA) and other commercial fishermen and dealers sued NMFS over the April 1997 regulations. The Court found that NMFS "failed to conduct a proper analysis to determine the [April 1997 LCS] quota's economic effect on small businesses." The Court directed NMFS "to undertake a rational consideration of the economic effects and potential alternatives to the 1997 [LCS] quotas" on small businesses engaged in the Atlantic shark commercial fishery. In May 1998, NMFS

completed its economic review of the 1997 LCS quota. It concluded that the quotas might have had a significant impact on a substantial number of small entities. However, the report declared that no other viable alternatives were available that would both mitigate these economic impacts and ensure the viability of LCS stocks.

In 1997, NMFS initiated the development of new rebuilding plans for overfished LCS stocks, incorporating updated overfishing definitions and a new LCS stock assessment. The 1998 stock assessment found that the LCS stocks remained overfished and could not be rebuilt under the 1997 harvest levels. In April 1999, NMFS replaced the 1993 FMP with a new management plan entitled the "Highly Migratory Species (HMS)" FMP. Significant measures implemented in the 1999 HMS FMP, published on May 28, 1999, include:

- reduced commercial quotas for LCS and SCS;
- the establishment of ridgeback and non-ridgeback subgroups within the LCS fishery;
- minimum fish sizes for ridgeback LCS;
- establishment of blue shark, porbeagle shark, and other pelagic shark subgroups within the pelagic shark fishery;
- commercial quotas for the new pelagic shark subgroups; and
- an expansion of the list of prohibited shark species.

On June 25, 1999, SOFA et al. sued NMFS again, challenging the commercial measures implemented in the HMS FMP. A settlement agreement was reached between the two parties and required, among other things, an independent review of the 1998 LCS stock assessment. The results of the independent review, completed in July 2001, found that the scientific conclusions and management recommendations reached in the 1998 stock assessment were not based on scientifically reasonable uses of appropriate fisheries stock assessment techniques and the best available biological fishery information relating to LCS. In light of this information, NMFS implemented an emergency rule for the 2002 fishing year suspending certain measures of the 1999 regulations and maintaining the 1997 LCS commercial quota (1,285 metric tons) and the 1997 SCS commercial quota (1,760 metric tons).

In May and October 2002, NMFS announced the availability of new stock assessments for the SCS and LCS stocks, respectively. The stock assessment found that: (1) the LCS complex is overfished and overfishing is occurring; (2) sandbar sharks are not overfished but overfishing is still occurring; (3) blacktip sharks are rebuilt and healthy; (4) the SCS complex, Atlantic sharpnose, bonnethead, and blacknose sharks are healthy; and (5) finetooth sharks are not overfished but overfishing is occurring.[42] Per the settlement agreement, the 2002 LCS stock

[42] The determination that a stock is overfished is based on whether the size of the biomass is above its threshold (defined in the fishery FMP), and the determination of whether overfishing is occurring is based on whether the fishing mortality rate is below its threshold (defined in the fishery FMP).

assessment was peer reviewed, which found the assessment consistent with the best available science and that the appropriate stock assessment models had been used.

On November 14, 2003, NMFS published the Notice of Availability of the Final Amendment 1 to the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks (Amendment 1) in the Federal Register (68 FR 74746). The final rule for Amendment 1 was published on December 24, 2003, and required, among other things: aggregating the large coastal shark complex; using maximum sustainable yield as a basis for setting commercial quotas; eliminating the commercial minimum size; establishing regional commercial quotas and trimester commercial fishing seasons; implementing updated gear restrictions; and establishing a time/area closure off the coast of North Carolina. Most of these regulations took effect on February 1, 2004.[43] The new commercial quotas for each group within the Atlantic shark fishery are provided in Exhibit 9-11, along with the previous (i.e., before Amendment 1) commercial quotas. An economic review of the changes in these quotas found minimal impacts on affected Atlantic shark vessels fishing the LCS and SCS stocks, and no impact on vessels fishing for pelagic sharks.

Exhibit 9-11

AMENDMENT 1 AND BASELINE QUOTAS FOR THE ATLANTIC SHARK FISHERY

Management Unit	Quota (metric tons)	Previous Quota (metric tons)
Large Coastal Sharks	1,017	1,285[1]
Pelagic Sharks	853	853[2]
Small Coastal Sharks	454	1,760[1]

Notes:
[1] LCS and SCS quotas adopted in 1997.
[2] Pelagic shark quota adopted under the 1999 HMS FMP.

Source: NMFS, 2003d.

Following promulgation of Amendment 1, NMFS took steps to consolidate the FMP for Atlantic Tunas, Swordfish, and Sharks with the Atlantic Billfish FMP. The draft of this new FMP was released in August of 2005. After extensive public comment, the new FMP – identified as the Consolidated Atlantic Highly Migratory Species (HMS) FMP – became law in July of 2006. In addition to consolidating its predecessor FMPs, the HMS FMP implements several new requirements, including mandatory safe handling and release workshops for operators of longline and gillnet vessels, as well as species identification workshops for shark dealers.

Amendment 2, effective July 2008, These measures include, but are not limited to, reductions in the commercial quotas, adjustments to commercial retention limits, establishment

[43] The change in commercial quotas, removal of commercial minimum sizes, and the establishment of regional quotas became effective on December 30, 2003. The North Carolina area/time closures and trimester seasons came into effect on January 1, 2005.

of a shark research fishery, a requirement for commercial vessels to maintain all fins on the shark carcasses through offloading, the establishment of two regional quotas for non-sandbar large coastal sharks (LCS), the establishment of one annual season for commercial shark fishing instead of trimesters, changes in reporting requirements for dealers (including swordfish and tuna dealers), the establishment of additional time/area closures for bottom longline (BLL) fisheries, and changes to the authorized species for recreational fisheries. This rule also establishes the 2008 commercial quota for all Atlantic shark species groups. These changes affect all commercial and recreational shark fishermen and shark dealers on the Atlantic Coast.

Amendment 3, effective July 2010, implemented the final conservation and management measures for blacknose sharks, shortfin mako sharks, and smooth dogfish. In order to reduce confusion with spiny dogfish regulations, this final rule places both smooth dogfish and Florida smoothhound into the smoothhound shark complex.

NMFS is proposed management measures that would amend the HMS fishery management regulations for the U.S. Caribbean Region to better correspond with the traditional operation of the fishing fleet in the region and to provide NMFS with an improved capability to monitor and sustainably manage those fisheries. The public comment period closed on June 14, 2012 and Amendment 4 went into effect on January 2, 2013.

Amendment 5 was developed in response to the results of several recent shark stock assessments, and will mainly deal with species in the large coastal shark (LCS) and small coastal shark (SCS) complexes. The first assessment initially was published in a peer-reviewed professional journal and later reviewed by NMFS scientists and adopted as a stock assessment for use in domestic shark management (76 FR 23794; April 28, 2011). The other assessments (sandbar, dusky, Atlantic blacknose, and Gulf of Mexico blacknose sharks) were conducted as part of the Southeast Data, Assessment, and Review (SEDAR) process (76 FR 62331; October 7, 2011). NMFS the proposed rule and DEIS was available for review in late 2012. As a result of public comments the action was split into two Amendments (5a and 5b) and the Final Amendment 5 to the Consolidated HMS FMP will be complete in 2014.

Regulations to Reduce Incidental Takes of Protected Species

The Southeast U.S. Atlantic shark gillnet fishery under the HMS FMP is listed as a Category II fishery. This fishery is currently subject to regulations under the Atlantic Large Whale Take Reduction Plan (ALWTRP).

Current ALWTRP regulations include measures such as a closure of the Southeast U.S. right whale critical habitat and adjacent area (approximately Savannah, GA to Sebastian, FL) to all driftnet gillnet gear in the restricted area during the calving season (November 15 - March 31); special provisions for fishing with strikenet gear in the restricted area during the calving season; a 100 percent observer requirement from November 15 to March 31 in the observer area; and gear marking requirements.

Historic HMS fisheries that affect marine mammals also include the pelagic longline, pair trawl, and pelagic driftnet fisheries for Atlantic tunas, sharks, and swordfish. In 1996, the Atlantic Offshore Cetacean Take Reduction Team (AOCTRT) was formed to address marine

mammal interactions with these fisheries. AOCTRT submitted a draft plan to reduce takes resulting from the gear associated with these fisheries, but the draft plan was not finalized. Instead, several protective measures were implemented through the HMS FMP. In particular, NMFS has prohibited the use of pair trawls and swordfish driftnets in Atlantic pelagic fisheries, and has implemented several other AOCTRT recommendations for the pelagic longline and shark gillnet fisheries.

In 2003, the SEFSC released an updated estimate of marine mammal and sea turtle bycatch in the pelagic longline fishery. This report indicated that the incidental take of the common dolphin and the long-finned pilot whale (strategic stock) in the Atlantic pelagic longline fishery may be occurring at levels that exceed Potential Biological Removal (PBR) for both species (Garrison, 2003). As a result of these findings, NMFS has convened an Atlantic Longline Take Reduction Team. The TRT held its initial meeting in June of 2005 (70 FR 36120). NMFS published a proposed rule on June 24, 2008 (73 FR 35623) and a final rule on May 19, 2009 (74 FR 23349), effective June 18, 2009. The plan consists of both regulatory and nonregulatory measures, including a special research area, gear modifications, outreach material, observer coverage, and captains' communications. In addition, the NMFS Southeast Regional Office recently concluded that the HMS pelagic longline fishery is likely to jeopardize the continued existence of leatherback sea turtles (NMFS, 2004c). Therefore, NMFS is proposing bycatch mitigation measures throughout the pelagic longline fishery that include mandatory pelagic longline circle hook and bait requirements and mandatory possession and use of onboard equipment to reduce sea turtle bycatch mortality (69 FR 6621).

The HMS fishery is also subject to the Bottlenose Dolphin Take Reduction Plan (April 26, 2006, 71 FR 24776). Takes in the HMS fishery have been documented for both bottlenose dolphins and sea turtles.

9.4.3.6 Coastal Migratory Pelagic Species

The Coastal Migratory Pelagic Species Fishery is based primarily in waters off the southeastern United States, including both Atlantic and Gulf of Mexico waters. During the 2012 calendar year, 4,742 vessels possessed permits to fish for coastal migratory pelagic species. Annual catch limits for commercial sectors of the Atlantic migratory groups cobia, king mackerel, Spanish mackerel are currently set at 125,712 lbs, 3.88 billion lbs, and 3.13 million lbs, respectively.

Management History

The Fishery Management Plan (FMP) for the Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic includes the management of several species: king mackerel, Spanish mackerel, and cobia. The coastal migratory pelagic species are further managed based on Gulf of Mexico and South Atlantic migratory groups.

Between 1983 and 2012, the FMP for the Coastal Migratory Pelagic Species Fishery was amended 18 times. A history of significant actions is included below:

- **Amendment 1 (Implemented September 1985)**. Significant provisions implemented in Amendment 1 include: a downward revision of the king mackerel maximum sustainable yield (MSY); recognition of separate Atlantic and Gulf migratory groups for king mackerel; establishment of fishing permits; establishment of bag limits for king mackerel; elimination of commercial allocations among gear users; and the division of the Gulf commercial allocation for king mackerel into eastern and western zones for the purpose of regional allocation.

- **Amendment 2 (Implemented July 1987)**. Amendment 2 focused on Spanish mackerel stocks, implementing measures revising the Spanish mackerel MSY downward, recognizing two migratory groups for Spanish mackerel, and setting commercial quotas and bag limits.

- **Amendment 3 (Originally approved in 1989, revised and resubmitted in 1990)**. Amendment 3 prohibited drift gillnets for coastal pelagics and purse seines for the overfished groups of mackerel.

- **Amendment 4 (Implemented October 1989)**. Amendment 4 reallocated Spanish mackerel equally between recreational and commercial fishermen in the Atlantic group, with an increase in Total Allowable Catch (TAC) levels.

- **Amendment 5 (Implemented August 1990)**. Amendment 5 made a number of changes in the management regime, including the following: extending the management area for Atlantic groups of mackerel through the Mid-Atlantic Fishery Management Council's area of jurisdiction; revising the fishery and plan objectives; revising the overfishing definition; revising the fishing year for the Gulf group of Spanish mackerel; adding cobia to the annual stock assessment procedure; assigning SAFMC responsibility for pre-season adjustments of the TACs and bag limits for the Atlantic migratory groups of mackerel, and the Gulf Council similar responsibility for the Gulf migratory groups; specifying that Gulf group king mackerel may only be taken by hook-and-line and run-around gillnets; and establishing minimum sizes for king mackerel.

- **Amendment 6 (Implemented November 1992)**. Amendment 6 also made substantial changes to the FMP designed to rebuild overfished stocks of mackerel. Implemented measures included size limits, trip limits, seasonal closures, and gear restrictions.

- **Amendment 7 (Implemented November 1994)**. Amendment 7 equally divided the eastern zone commercial quota for the Gulf migratory group of king mackerel between the Florida east and west coast fisheries. It further divided the quota for the west coast sub-zone into equal quotas for hook-and-line and run-around gillnet harvesters. The intended effects of this rule were (1) the equitable allocation of the eastern zone commercial quota

among users, and (2) avoiding the negative social and economic consequences of a disproportionately large harvest in the commercial fishery for Gulf group king mackerel off the west coast of Florida.

- **Amendment 8 (Implemented March 1998)**. Amendment 8 made a number of changes to the management regime, including establishment of a moratorium on commercial king mackerel permits until no later than October 15, 2000; increasing the income requirement for a king or Spanish mackerel permit; setting an optimum yield (OY) target at 30 percent of the static spawning potential ratio (SPR); and clarifying ambiguity about allowable gear specifications for the Gulf group king mackerel fishery.

- **Amendment 9 (Implemented April 2000)**. Amendment 9 changed the percentage of the commercial allocation of TAC for the Florida east coast and Florida west coast. It also allowed possession of cut-off (damaged) king or Spanish mackerel that comply with the minimum size limits and the trip limits in the Gulf, Mid-Atlantic, or South Atlantic EEZ.

- **Amendment 10 (Implemented 1999)**. Amendment 10 designated essential fish habitat (EFH) and Habitat Areas of Particular Concern for coastal migratory pelagic resources.

- **Amendment 11 (Implemented 2000)**. Amendment 11 amended the FMP to make the definitions for MSY, OY, overfishing, and overfished consistent with the "National Standard Guidelines."

- **Amendment 12 (Implemented October 2000)**. Amendment 12 extended the commercial king mackerel permit moratorium from October 15, 2000 to October 15, 2005, or until replaced with a license limitation, limited access, and/or individual fishing quota or individual transferable quota system (ITQ), whichever occurs earlier.

- **Amendment 13 (Implemented August 2002)**. Amendment 13 established two marine reserves in the EEZ of the Gulf of Mexico, known as Tortugas North and Tortugas South, in which fishing for coastal migratory pelagic species is prohibited. This action complements previous actions taken under the National Marine Sanctuaries Act.

- **Amendment 14 (Implemented July 2002)**. Amendment 14 established a 3-year moratorium on the issuance of charter vessel and headboat king mackerel permits in the Gulf, unless replaced by a comprehensive effort limitation system. The control date for eligibility was established as March 29, 2001. The amendment also included other provisions for eligibility, application, appeals, and transferability of permits.

- **Amendment 15 (July 2005)**. Amendment 15 established an indefinite limited access program for king mackerel in the EEZ under the jurisdiction of the Gulf of Mexico, South Atlantic, and Mid-Atlantic Fishery Management Councils. It also changed the fishing year to March 1 through February 28/29 for Atlantic group king and Spanish mackerel.

- **Amendment 16.** This amendment was not developed.

- **Amendment 17 (Implemented June 2006).** Amendment 17 established a limited access system on for-hire reef fish can coastal migratory pelagic species permits. *This amendment only applies to fisheries in the Gulf of Mexico.*

- **Amendment 18 (Implemented January 2012).** Amendment 18 established annual catch limits, annual catch targets, and accountability measures for king mackerel, Spanish mackerel and cobia. This amendment also established both Atlantic and Gulf migratory groups for cobia; modified the framework procedures; and removed species, such as, cero, little tunny, dolphin and bluefish from the Fishery Management Unit.

Regulations to Reduce Incidental Takes of Protected Species

The Coastal Migratory Pelagic Species Fishery is listed as a Category II fishery (Southeast Atlantic gillnet fishery) and is subject to regulations under the ALWTRP to reduce interactions with large whales.

9.4.3.7 Black Sea Bass

9.4.3.7.1 The Northern Fishery

The northern portion of the black sea bass fishery extends from Cape Hatteras to the U.S./Canada border. Landings of black sea bass in the Northeastern U.S. totaled 1.7 million pounds in 2011 with a total ex-vessel value of $5.4 million. Trawls and trap/pot were used to catch the greatest percentage of black sea bass, about 37 percent and 27 percent respectively. In the 2011 fishing year, a total of 1,554 vessels held black sea bass permits. Of this number, a total of 182 vessels (about 12 percent) relied primarily upon gear that is potentially subject to regulation under the ALWTRP.

Management History

Commercial landings of black sea bass have been recorded since the late 1800s. These data indicate that annual landings north of Cape Hatteras averaged approximately six million pounds from 1887 until 1948, when they increased to approximately 15.2 million pounds. Shortly thereafter, landings of black sea bass declined dramatically, falling from a peak of 22 million pounds in 1952 to 1.3 million pounds in 1971. At the time of the development of the

first Federal management plan in 1994, commercial landings of black sea bass totaled approximately two million pounds per year.

A spring offshore survey and an autumn inshore survey of black sea bass have been conducted every year since 1972. The spring offshore survey is used to create an index for black sea bass recruits (fish longer than 20 cm SL[44]), while the autumn inshore survey is used as an index for black sea bass pre-recruits (fish longer than 11 cm SL). In the 1970s, the spring recruit index ranged from 2.0 to 6.09 fish per tow. In 1982, this number had plunged to a low of 0.2 per tow. Prior to the approval of the first black sea bass FMP, the spring index ranged from 0.28 in 1994 to 0.87 in 1997 (NEFSC, 1995). The fall pre-recruit index showed a similar declining trend during this period.

The black sea bass fishery in the Northeast is jointly managed by the Atlantic States Marine Fisheries Commission (ASMFC) and the Mid-Atlantic Fishery Management Council (MAFMC) under the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan. The Council first started work on an FMP for black sea bass in 1978. The development of the black sea bass plan was delayed, however, through a series of amendments to the Summer Flounder FMP, and work on a separate Black Sea Bass FMP did not resume until 1993.

In 1996, NMFS requested that the black sea bass regulations be incorporated into the Summer Flounder FMP to reduce the number of separate fisheries regulations issued by the Federal government. The Black Sea Bass FMP was incorporated into the summer flounder regulations in Amendment 9 to the Summer Flounder FMP.

Based on fishery conditions in the early-to-mid 1990s, Amendment 9 set a target annual exploitation rate of 23 percent. The estimated annual exploitation rate in the fishery at the time was 60 percent. In order to reach the target exploitation rate, the Board approved a recovery strategy to reduce overfishing over an eight-year time frame. During the first two years of this period, the strategy established minimum fish sizes and commercial gear regulations aimed at reducing mortality rates for smaller black sea bass. Beginning in the third year, additional regulations established an annual commercial quota allocated in four quarters, designed to reduce mortality for larger black sea bass. Under this system the fishery was to be closed once the quota available for each quarter was harvested.

The Commission designed the commercial quota system to allow for black sea bass to be landed during the entire three months in each quarter. However, the black sea bass fishery experienced early closures during the last three quarters of 1999 and 2000. In quarters 3 and 4 of 2000, the quarterly allocation was harvested within one month, leaving the fishery closed for the remaining two months of those quarters. In 2001, early closures were required in all four quarters (Exhibit 9-12).

Responding to the economic difficulties associated with these long quarterly closures, the Commission chose to abandon the quarterly system in favor of state-by-state quota management (Exhibit 9-13). This resulted in the passage of Amendment 13, in which NMFS implemented

[44] Standard length (SL) of fish is estimated to the nearest centimeter.

compatible Federal regulations to establish coast-wide annual quotas effective March 31, 2003 (67 FR 72131 and 68 FR 10181). These requirements were continued by an August 2004 addendum. In addition, the 2004 adoption of Framework 5 to the FMP allowed for annual specifications of total allowable landings (TAL) to remain in effect for up to three years (69 FR 62818). Since then, Addendum XIII (2004) has allowed more latitude in establishing three-year TALs, and Addendum XVI (2006) has provided mechanisms to ensure that a state meets its obligations under the FMP in ways that minimize the probability that a state's delay in complying could adversely affect other states' fisheries or conservation of the resource.

A stock assessment report drafted in 2004, which concluded that the black sea bass stock was not overfished, was withdrawn in 2006 after not passing the peer review process. A new stock assessment report is underway. As of 2006, a TAL of 6.5 million pounds was specified for state waters, and a TAL of 5 million pounds was specified for Federal waters.

Exhibit 9-12

NORTHERN BLACK SEA BASS FISHERY CLOSURES

Year	Quarter	Number of weeks closed
1999	Quarter 1	0
	Quarter 2	2
	Quarter 3	1
	Quarter 4	2
2000	Quarter 1	0
	Quarter 2	3
	Quarter 3	9
	Quarter 4	7
2001	Quarter 1	3
	Quarter 2	3
	Quarter 3	9
	Quarter 4	7
2002	Quarter 1	0
	Quarter 2	3
	Quarter 3	8
	Quarter 4	0

Source: ASMFC, 2002a and NMFS, 2004d.

Exhibit 9-13

STATE-BY-STATE BLACK SEA BASS ALLOCATION

State	Percent of Quota
Maine	0.5%
New Hampshire	0.5%
Massachusetts	13%
Connecticut	1%
New York	7%
New Jersey	20%
Rhode Island	11%
Delaware	5%
Maryland	11%
North Carolina	11%
Virginia	20%
TOTAL:	**100%**
Source: ASMFC, 2002b.	

In 2006, Framework 6 established region specific conservation equivalency measures for summer flounder. In 2007, Amendment 14 and 16 were established, along with Framework 7. These measures established a rebuilding schedule for scup, standardized bycatch reporting methodology, and defined and updated status determination criteria.

Addendum XIX, effective in August 2007 extended the black sea bass state-by-state commercial allocation established under Addendum XII.

Addendum XX, effective in November 2009, streamlined and coordinated the transfers of quota as well as established clear policies and administrative protocols to guide the allocation of transfers from states with underages to states with overages and allowed for quota transfers to reconcile quota overages after year's end.

Addendum XXI, approved in March 2011, allowed state by state or regional management measures to be implemented for the 2011 fishing year.

Regulations to Reduce Incidental Takes of Protected Species

The northern black sea bass trap/pot fishery is listed as a Category II fishery (Atlantic mixed species trap/pot), elevated in 2001 from Category III (66 FR 42780), due to potential interactions with marine mammals, particularly the endangered North Atlantic right whale. The northern black sea bass gillnet fishery is also subject to regulations under the Harbor Porpoise Take Reduction Plan (HPTRP) that prohibit the setting of gillnets in certain areas for selected time periods. These closures include a prohibition on the use of large mesh gillnet gear west of 72E30' in southern Mid-Atlantic waters (Maryland, Delaware, Virginia and North Carolina) from February 15 through March 15. Although the closure is meant to prevent harbor porpoise takes in gillnet gear, it may also benefit sea turtles by reducing gillnet effort off of North Carolina during this time period, when sea turtles may be present.

In addition to regulations implemented under the HPTRP, it is possible that the northern black sea bass fishery will be subject to future regulations promulgated under the Sea Turtle Strategy.

9.4.3.7.2 The Southern Fishery

The southern portion of the black sea bass trap/pot fishery extends from Cape Hatteras, NC to Cape Canaveral, FL. Commercial permits are issued in the southeast for the South Atlantic snapper-grouper fishery, which includes black sea bass. The southern black sea bass pot fishery, which is managed under the Snapper-Grouper Fishery Management Plan, is a limited access fishery with only 32 endorsements. Exhibit 4-22 (see Chapter 4) summarizes the number of permitted vessels, by state.

Management History

The southern portion of the black sea bass fishery is managed under the Fishery Management Plan (FMP) for the Snapper-Grouper fishery of the South Atlantic Region. The FMP, as amended, establishes minimum size limits, a commercial trip limit, black sea bass pot gear restrictions, and vessel permitting and reporting requirements for the southern black sea bass fishery.

The original Snapper Grouper FMP (South Atlantic Fishery Management Council 1983) included size limits for black sea bass (8" total length (TL)). Trawl gear, primarily targeting vermilion snapper, was prohibited starting in January 1989. In 1991, the Council approved Amendment 4 to the FMP, implementing a series of regulations to reduce mortality of overfished species in the snapper/grouper complex. Fish traps (not including black sea bass pots) and entanglement nets were prohibited starting in January 1992. This action prohibited black sea bass pot fishermen from making multi-gear trips and retaining the incidental catch of other species. This action unintentionally resulted in large economic losses for black sea bass fishermen; in response, the Council requested emergency regulations on July 18, 1992 to modify the definition of black sea bass pots, allow multi-gear trips, and allow retention of incidentally caught fish. On December 11, 1992, the Council submitted a regulatory amendment implementing the emergency action provisions on a permanent basis.

In 1996, a new stock assessment of the snapper/grouper complex, based on 1995 data, was released. The stock assessment produced a spawning potential ratio (SPR) of 26 percent, indicating that the species was overfished.[45] This assessment was supported by data on the catch-per-unit-effort of headboats off South Carolina, which had declined from just over 11 fish per angler day in 1980 to just over one fish per angler day in 1995. The Council identified the need for a 56 percent reduction in black sea bass mortality to achieve Optimum Yield (OY), and the need to reduce mortality by 22 percent to eliminate overfishing. Under Amendment 9 (1998), the Council responded to this new information, increasing the minimum size limit from 8 inches to ten inches for both commercial and recreational black sea bass fishermen; establishing

[45] Species can be classified as overfished if values of fishing mortality (F), spawning stock biomass (SSB), or spawning potential ratio (SPR) are above or below target levels.

a recreational bag limit of 20 black sea bass per person per day; and requiring escape vents and panels with degradable fasteners on black sea bass pots.

According to the Status of Fisheries Report to Congress (2002), the southern black sea bass fishery remained overfished following implementation of Amendment 9. To address the lack of improvement in the southern black sea bass stock, the SAFMC implemented Amendment 13C to the Snapper Grouper FMP (71 FR 33423). This amendment included provisions to:

- Change the commercial and recreational fishing year from January 1 through December 31 to June 1 through May 31;
- Establish an annual commercial quota that is to decrease over three years from 477,000 pounds in Year 1 (June 1, 2006, to May 31, 2007) to 423,000 pounds in Year 2 (June 1, 2007, to May 31, 2008), and to 309,000 pounds in Year 3 (June 1, 2008, to May 31, 2009);
- Require the use of at least 2-inch mesh for the entire back panel of pots;
- Require the removal of pots from the water once the commercial quota is met;
- Establish a recreational allocation that would decrease over three years from 633,000 pounds in Year 1 to 560,000 pounds in Year 2, and to 409,000 pounds in Year 3;
- Increase the recreational size limit from 10-inch total length (TL) to 11-inch TL in Year 1 and 12-inch TL in Year 2; and
- Reduce the recreational bag limit from 20 to 15 per person per day.

In 2008, the SAFMC published Amendment 15A, which: 1) updated black sea bass management reference points; 2) modified the rebuilding schedule; and 3) defined a rebuilding strategy. In 2010, Amendment 17B established annual catch limits and accountability measures and addressed overfishing for nine species in the snapper grouper management complex currently listed as undergoing overfishing, including black sea bass. The commercial annual catch limit for black sea bass was set at 309,000 lbs. In 2011, Regulatory Amendment 9 was implemented and reduced the bag limit for black sea bass from 15 fish per person to 5 fish per person.

In 2012, the SAFMC published Amendment 18A which included management actions to limit participation and effort in the black sea bass fishery. Measures include establishment of an endorsement program, commercial trip limit, increasing minimum size limits for commercial black sea bass to 11 inches, and other modifications to the commercial pot fishery. Vessels are now limited to 35 pots per trip and all pots must be brought back to shore at the conclusion of each trip.

The most recent regulatory amendment, 19, became effective in 2013 (78 FR 39700). This amendment specified the acceptable biological catch (ABC) and revised the optimum yield (OY), the commercial and recreational annual catch limits (ACLs), and the recreational annual catch target (ACT) for black sea bass harvested in the South Atlantic. These changes were based on the 2013 stock assessment which deemed the stock rebuilt. Amendment 19 also established an annual prohibition on the use of black sea bass pots from November 1 through April 30.

NMFS is aware that the SAFMC is developing a regulatory amendment, Snapper Grouper Regulatory Amendment 16, to modify or remove the recently implemented black sea bass fishery closure intended to protect right whales from entanglement in vertical lines associated with the black sea bass fishery. NMFS is also aware that this regulatory amendment has the potential to contradict or remain consistent with the intent of this final rule (intended to reduce the threat of entanglement to right and other large whales from vertical lines associated with commercial fisheries). Therefore, NMFS is collaborating with the SAFMC on their regulatory amendment to encourage adequate protection for right whales.

Regulations to Reduce Incidental Takes of Protected Species

Similar to the northern Atlantic black sea bass trap/pot fishery, the southern Atlantic black sea bass trap/pot fishery is listed as a Category II fishery (Atlantic mixed species trap/pot) due to potential interactions with marine mammals, particularly the endangered North Atlantic right whale. Although not a regulation, commercial black sea bass trap/pot gear has not been fished from November through April during the right whale calving and large whale migration season since December 2009. This lack of co-occurrence of vertical line and whales is the most effective measure in reducing entanglement risk of endangered large whales.

Amendment 18A introduced a number of regulations to the black sea bass fishery which will have an unknown effect on protected species, including right whales. Because the number of trap pots and participants was reduced, the potential entanglement risk from this gear type may be reduced provided remaining fishermen do not increase their effort. However, if the reduction in participants and pots, increases effort among the remaining participants or extends the fishing season so that it overlaps with right whale calving season, the entanglement risk could remain the same or increase. Regardless, fishermen are now required to bring all black sea pots back to shore at the end of each trip and this will likely decrease the entanglement risk to right whales because it is expected to reduce ghost fishing and the amount of time vertical pot lines are in the water. Most importantly, Amendment 19 established an annual prohibition on the use of black sea bass pots from November 1 through April 30.

9.4.3.8 Hagfish

Landings of hagfish in the Northeastern U.S. totaled 4.9 million pounds in 2010, with a total ex-vessel value of $1.1 million. Nearly all hagfish were caught with fish pots and traps, gear that is potentially subject to ALWTRP regulations.

Management History

Currently, the Atlantic hagfish fishery is not regulated, but NMFS and the New England Fishery Management Council are moving toward developing a management scheme for the fishery. On September 9, 2002, NMFS issued a Notice of Proposed Rulemaking that established a control date of August 28, 2002 for potential future use in determining historical or traditional participation in the fishery.[46] In this notice, NMFS also stated its intent to encourage the New England Fishery Management Council to develop an FMP for the fishery, preventing overcapitalization and increased pressure on the stock due to a movement of vessels into the fishery. This action was motivated, in part, because scientific studies suggest that Atlantic hagfish are likely vulnerable to overfishing due to the low reproductive capacity of the species (67 FR 55191). As a result of these findings, NMFS and the Council are developing a hagfish FMP (NMFS, 2005b) and recently established observer requirements for hagfish vessels, as well as reporting requirements for all dealers purchasing hagfish directly from vessels (72 FR 20036). These requirements are designed to provide data that will support development of the FMP.

9.4.3.9 Red Crab

About 3.6 million pounds of red crab were landed in the Northeastern U.S. in 2011, with an ex-vessel value of roughly $3.5 million. Almost all of the red crab landed was caught using crab pots and traps, gear that is potentially subject to ALWTRP regulations.

Management History

Since the early 1970s there has been a small directed red crab fishery off the New England and Mid-Atlantic coasts. Though the size and intensity of this fishery has fluctuated since its origin, it has remained consistently small relative to more prominent New England fisheries such as groundfish, sea scallops, and lobster. Throughout the 1980s, landings averaged approximately 5.5 million pounds per year. In the late 1990s, landings increased substantially, reaching a peak in 2001 of 8.8 million pounds. It is suspected that the increased activity in this fishery in the mid-1990s might be a result of the implementation of Amendment 5 to the Northeast Multispecies (Groundfish) FMP, and the subsequent redirection of some fishing effort to “under-exploited” fishery resources such as red crab.

Faced with the increase in landings and interest in the fishery, a group of fishermen approached the New England Fishery Management Council (the Council) in late 1999 requesting the Council to develop a fishery management plan for the red crab fishery. They also asked the Council to consider taking steps to limit access to the fishery, a measure they hoped would help the fishery maintain yields at sustainable levels. In November 1999, the Council agreed to begin development of a red crab FMP, and in 2000 a control date was established for the fishery to discourage "speculative entry," or rapid entry of new vessels into the fishery while the management plan was undergoing development.

[46] The notice also served to deny the rulemaking requested in a Petition for Rulemaking asking NMFS to implement emergency measures to limit entry into the fishery, as emergency action was deemed unnecessary.

Reducing the threat of overfishing became the primary objective of the new red crab FMP. A comprehensive survey conducted when the fishable stock of this resource was considered to be in "virgin" condition estimated maximum sustainable yield (MSY) at 5.5 million pounds of exploitable males (Serchuk, 1977). The Council concluded that average commercial landings of red crab have exceeded this level several times, and in 1982, NMFS declared the red crab resource was "becoming fully exploited." This determination was based on an increase in landings from nearly 2.7 million pounds in 1979 (there had been a fairly steady increase in landings since 1974) to just over 5.6 million pounds in 1980 (NMFS, 1982). The following year NMFS revised this status to "fully exploited" after landings increased to 6.8 million pounds in 1981 (NMFS, 1983). In more recent years, beginning in 1998, red crab landings increased dramatically again to levels near or above MSY.

The final Red Crab FMP was implemented on October 21, 2002 (67 FR 63221). The plan granted controlled access permits to vessels that demonstrated average annual landings of red crab greater than 250,000 pounds during a qualifying time period. Five vessels qualified for controlled access permits in fishing year 2002. Additional measures implemented include:

- The establishment of baseline trip limits (75,000 pounds) that restrict the amount that can be landed during each fishing trip, with one vessel qualifying for a higher trip limit of 125,000 pounds, based on its landings history;
- Designation of an annual total allowable catch (TAC);
- Allocation of days-at-sea (DAS, the number of days that can be fished each year) to vessels with a controlled access permit;
- Trap limits (600 traps per vessel); and
- Limitation on full processing at sea.

The 2003 fishing year was the first full year with the Red Crab FMP in place. In this year, the FMP allocated the red crab fishery 780 days-at-sea and a TAC of 5.9 million pounds. These effort restrictions translated into 156 days-at-sea for each of the five qualified limited access vessels in the red crab fleet.

Provisions within the Red Crab FMP require the Council to review the status of the stock and the fishery every year, as well as prepare a biennial Stock Assessment and Fishery Evaluation (SAFE Report). The recent adoption of Framework 1 to the FMP, in 2005, allows for annual specifications to remain in effect for up to 3 years (70 FR 44060). For the 2004-2006 fishing years, the DAS allocation and TAC level remained unchanged for the red crab fishery.

In FY 2009, NMFS published a temporary emergency rule to modify the 2009 target TAC and fleet DAS to be consistent with the recommendations of the Data Poor Stocks Working Group and Review Panel (Working Group). The Working Group recommended a reduction in the maximum sustainable yield (MSY) to 3.75–4.19 million lb (1,700–1,900 mt). In keeping with the FMP in setting the target TAC at 95 percent of MSY, NMFS implemented a target TAC of 3.56 million lb (1,615 mt), and reduced the fleet DAS allocation from 780 DAS to 582 DAS.

The fleet DAS allocation is divided equally among the vessels active in the fishery, which can vary from year to year. For FY 2009, the allocation was initially divided among four vessels; however, NMFS allowed one of the four vessels to opt out of the fishery for the FY and reallocated the fleet DAS to the remaining three vessels. The only other proposed change to the red crab regulations is to waive the requirement that vessel owners inform NMFS at least 6 months in advance to opt a vessel out of the fishery. No changes to possession limits or gear/trap restrictions were proposed.

In 2011, Amendment 3 was proposed to establish an annual catch limit and accountability measures, as required under the Magnuson-Stevens Act. Amendment 3 to the Red Crab FMP (76 FR 39369) proposes to establish an annual catch limit and total allowable landings limit of 3.91 million lb, establish an proactive accountability measure (in-season closure) and a reactive accountability measure (pound-for-pound payback of an overage). Amendment 3 also removes the DAS and IVR requirements. Amendment 3 became effective on September 29, 2011.

Regulations to Reduce Incidental Takes of Protected Species

The red crab fishery is listed as a Category II fishery (Atlantic mixed species trap/pot fishery) due to potential interactions with marine mammals. The red crab fishery is subject to regulations under the ALWTRP, including a requirement to install a weak link at all buoys that break away knotless at 3,780 pounds.

9.4.3.10 Scup

In 2011, commercial landings for scup totaled 15 million pounds; of this, approximately seven percent, or 1,045,200 pounds, were caught using traps and pots. The ex-vessel value of scup landings in the Northeast totaled $8.2 million in 2011. A total of 114 vessels indicated the primary gear was affected by the ALWTRP.

Management History

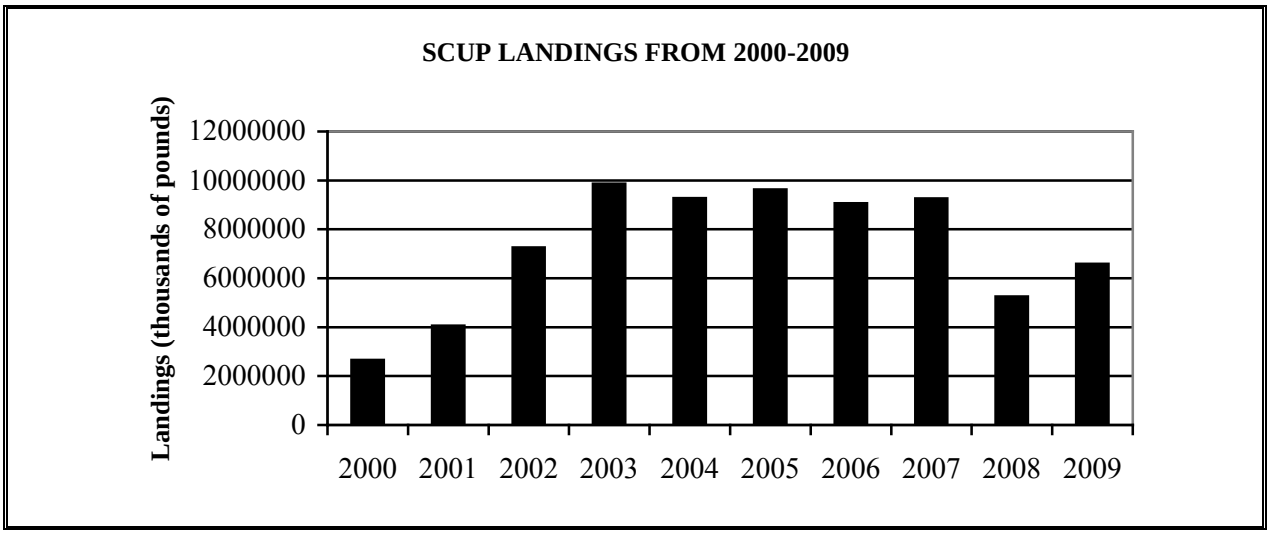
Commercial scup landings have declined substantially since peaking in the 1960s. In 1989, commercial landings decreased to 8.2 million pounds, the lowest value recorded during the ten-year period from 1983 to 1992, and only about 17 percent of the 49 million pounds landed in 1960. More recently, the collapse of the Northeast groundfish fishery has resulted in increasing fishing pressures on the already overexploited scup fishery. Annual landings of scup declined from just over 15 million pounds in 1991 to less than 3 million pounds in 2000. Since 2000, however, annual landings have increased (Figure 9-194.

The Atlantic States Marine Fisheries Commission (Commission) and the Mid-Atlantic Fishery Management Council (Council) jointly manage the scup fishery. The Council approved the first Scup FMP under Amendment 8 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (61 FR 56125). Amendment 8 defines overfishing for the scup as fishing in excess of the F_{max} level, where F_{max} is equal to 0.24 (or an annual exploitation rate of

19 percent). Based on a review of coastwide data, mortality rates in the early 1980s were slightly greater than 0.3. These rates rose to 1.0 in 1988 and 1.3 in 1996 (or an annual exploitation rate of 67 percent). This information indicated that overexploitation in the scup fishery started in the early 1980s; in order to achieve F_{max}, the plan identified a need to reduce current exploitation rates by 72 percent.

To reduce scup mortality, the Council adopted a seven-year strategy. Year 1 implemented minimum fish sizes and commercial gear regulations, measures designed to reduce the mortality rate for smaller scup. Beginning in Year 2, the strategy implemented a coastwide annual quota, or Total Allowable Catch (TAC). This annual quota is divided into three periods: Winter I, Summer, and Winter II. Addendum V, approved in 2002, establishes a state-by-state allocation system for the summer period. In this system, each state receives a share of the

Exhibit 9-14



summer period quota based on commercial landings from 1983-1992. The fishery is closed each period once the quota for the season has been reached.

In addition to effort control, Amendment 8 includes a moratorium on commercial permits. Under this moratorium, only a limited number of permits are granted each year. The purpose of this provision is to cap entry so that new entrants to the fishery do not dissipate future gains in productivity and profitability.

The 2000 scup stock assessment classified the resource as overfished. Since then, an updated stock assessment, completed in June 2002, indicated scup was no longer overfished, but that the "stock status with respect to overfishing cannot currently be evaluated." In addition, the report concluded that, although the "relative exploitation rates have declined in recent years, the

absolute value of F [fishing mortality] cannot be determined." The assessment, however, did state that "survey data indicate[s] strong recruitment and some rebuilding of age structure" in recent years. However, in 2005, the scup index of recruitment declined and scup is now again considered overfished (ASMFC, 2005).

The Council and ASMFC are currently considering measures that would establish a program and timeline for rebuilding scup stocks. The Council, through Amendment 14 to the FMP, has proposed a timeline of seven years to rebuild the stock in Federal waters, with an option to extend the timeline for three additional years (72 FR 18193). Amendment 14 was approved in July 2007.

Addendum XX, effective in November 2009, streamlined and coordinated the transfers of quota as well as established clear policies and administrative protocols to guide the allocation of transfers from states with underages to states with overages and allowed for quota transfers to reconcile quota overages after year's end.

Addendum XXI, approved in March 2011, allowed state by state or regional management measures to be implemented for the 2011 fishing year.

Regulations to Reduce Incidental Takes of Protected Species

The Atlantic scup gillnet fishery is listed as a Category I fishery (Mid-Atlantic coastal gillnet), elevated in 2003 from Category II, mostly due to potential interactions with marine mammals, particularly protected dolphins. The Atlantic scup trap/pot fishery is listed as a Category II fishery (Atlantic mixed species trap/pot fishery) due to potential interactions primarily with the endangered North Atlantic right whale. The Atlantic scup gillnet fishery is subject to regulations under the Harbor Porpoise Take Reduction Plan (HPTRP) that prohibit the setting of gillnets in certain areas for selected time periods. These closures include a prohibition on the use of large mesh gillnet gear west of 72E30' in southern Mid-Atlantic waters (Maryland, Delaware, Virginia and North Carolina) from February 15 through March 15. Although the closure is meant to prevent harbor porpoise takes in gillnet gear, it should also benefit sea turtles by reducing gillnet effort where sea turtles occur during this time period. In addition to regulations implemented under the HPTRP, it is possible that the Atlantic scup gillnet and trap/pot fisheries will be subject to future regulations promulgated under the Sea Turtle Strategy.

9.4.3.11 Jonah Crab

Jonah crab is traditionally caught as incidental catch to the Maine lobster fishery. Landings of Jonah crab in the Northeastern U.S. totaled 11.4 million pounds in 2011, with an ex-vessel value of $6.5 million. Nearly all of the landings were accounted for by ALWTRP-regulated gear.

Management History

Jonah crab is currently an unregulated species in Federal waters. Little is known about the species' biology, distribution, and relative abundance. A recent increase in apparent abundance and market demand has focused new attention on this traditional species caught

incidentally in the Maine lobster fishery. Landings data over the last decade confirm the emergence of the fishery, with landings peaking in 1997 at just over 4 million pounds.

In September 2003, the Maine Department of Marine Resources (DMR) was granted a one-year Exempted Fishing Permit that allowed up to 100 permitted lobster fishermen to set up to 200 modified lobster traps (in addition to their normal trap allocation) in Federal waters of Federal Lobster Management Area 1.[47] Through this process, Maine DMR hopes to demonstrate that the modified lobster trap will catch Jonah crabs only and not lobster. The DMR expects that this study could clarify the sustainability and practicality of a directed Jonah crab fishery in the area (C. Wilson, pers. comm., 2003). DMR implemented biological limits on crabs in 2005 but the Jonah Crab remains unregulated at the Federal level.

9.4.3.12 Conch/Whelk

The Atlantic Coast whelk fishery targets two principal species, the knobbed whelk (*Busycon carica*) and the channeled whelk (*Busycon canaliculatum*).[48] Approximately 2.3 million pounds of whelk were landed in the Northeast U.S. in 2011, with a total ex-vessel value of $9 million. Traps and pots accounted for 78 percent of total landings.

Management History

Conch/whelk is currently an unregulated species in Federal waters. The commercial conch/whelk pot fishery extends along the Atlantic coast from Massachusetts to the Carolinas. Little is known about the relative abundance of the conch/whelk resource. Conch/whelk landings over the last decade have remained steady at approximately two million pounds a year, with a peak in 1994 of approximately 4.1 million pounds.

9.4.3.13 Summary of Factors Affecting Fishery Resources

Exhibit 9-15 summarizes the status; the past, present, and reasonably foreseeable future actions; and the overall effect of those actions on the 12 major fisheries affected by the regulatory alternatives.

[47] This permit was also granted for the previous fishing year.

[48] The knobbed and channeled whelk caught along the Atlantic coast are commonly referred to as "conch" in industry transactions.

Exhibit 9-15

SUMMARY OF FACTORS AFFECTING FISHERY RESOURCES

Fishery	Stock Status[1]	Major Past, Present, And Reasonably Foreseeable Future (PPRFFA) Actions	Effect of PPRFFAs
Lobster Trap/Pot Fishery			
American Lobster	• Overfishing[2]	• Amendment 3 • Addendum I and IV trap reductions • Potential restrictions under sea turtle strategy	Positive
Gillnet Fisheries			
Northeast Multispecies	• Overfished and Overfishing: Cod (GOM/GB); Yellowtail Flounder (GB);Yellowtail Flounder (CC/GOM); Windowpane Flounder (northern); and Witch Flounder • Overfished but not overfishing: Winter Flounder (SNE/MA); Winter Flounder (GOM); Ocean Pout; Atlantic wolfish; and Atlantic Halibut; • Overfishing but not overfished: Haddock (GOM) • Not overfishing; not overfished: Pollock; Winter Flounder (GB); Yellowtail Flounder (SNE/MA); White Hake; Windowpane Flounder (southern); Silver Hake (SGB/MA); Haddock (GB); American Plaice; red fish; and Silver Hake (GOM/NGB);Red Hake (GM/NGB); (Red Hake (SGB/MA) • Overfishing unknown: Offshore Hake; Atlantic wolffish	• See 9.4.3.2 for history of management actions • Amendment 13 • Amendment 16 • Amendment 19 (Whiting)	Positive
Monkfish	• Rebuilt	• Monkfish FMP DAS reductions	Positive
Spiny Dogfish	• Rebuilt	• FMP (2000) • Annual specifications • Amendment 3 (Future)-Updates EFH, implements RSA, eliminates seasonal allocation of quota	Positive
Shark Fisheries	• Overfished and overfishing: Sandbar shark; dusky shark; Blacktooth shark • Overfished and but not overfishing: Blacknose Shark; • Overfishing and approaching overfished status: Shortfin Mako Shark • Not overfishing; not overfished: Atlantic Sharpnose Shark; Blacktip Shark (GOM); Bonnethead Shark; Finetooth shark; and Small Coastal Shark Complex. • Unknown: Large Coastal Shark Complex and Blacktip Shark (Atlantic)	• Amendment 1 harvest quotas, time/area closure, VMS requirements, measures to reduce bycatch and bycatch mortality, and modified recreational limits	Positive
Coastal Migratory Pelagic	• Not overfishing; not overfished: King Mackerel (Atlantic); Spanish Mackerel (Atlantic) • Not overfishing, not overfished: Cobia	• See 9.4.3.6 for history of management actions • Amendment 12 harvest quotas • Amendment 15 limited access program • Amendment 18 harvest quotas	Positive

Notes:
[1] NMFS Annual Report to Congress on the Status of the Fisheries for 2006,2007,2008,2009,and 2011.
[2] While there is no clear biomass target in the ASMFC FMP, the 2000 ASMFC Assessment for American Lobster found that lobster stocks are growth overfished.

Exhibit 9-15

SUMMARY OF FACTORS AFFECTING FISHERY RESOURCES

Fishery	Stock Status[1]	Major Past, Present, And Reasonably Foreseeable Future (PPRFFA) Actions	Effect of PPRFFAs
Other Trap/Pot Fisheries			
Black Sea Bass Northern	• Rebuilt	• Amendment 9 harvest quotas • Amendment 13 harvest quotas • Potential restrictions under sea turtle strategy • Omnibus ACL/AM Amendment (Amendment 16)	Positive
Southern	• Rebuilt	• Amendment 9 increases in minimum size; gear modifications • Amendment 13C measures to reduce southern black sea bass fishing effort • Amendment 17B harvest quotas • Amendment 18A endorsement program, trip limits, minimum size increase, fishery modifications • Amendment 19 increased harvest quota and established a November-April closure	Positive
Hagfish	Unknown	• Not a federally managed fishery at this time.	Not applicable
Red Crab	Unknown	• Red Crab FMP harvest quota • Amendment 3 (ACL/AM)	Positive
Scup	• Rebuilt	• Amendment 8 harvest quota • Restrictions for the Atlantic scup gillnet fishery under HPTRP • Potential restrictions under sea turtle strategy • Amendment 18 (review quota allocations) *future action*	Positive
Jonah Crab	Not available	• Not a federally managed fishery at this time.	Not applicable
Conch/Whelk	Not available	• Not a federally managed fishery at this time.	Not applicable

Notes:
[1] NMFS, 2003e

9.4.4 Habitat

This section has three basic objectives:

- First, it provides a brief regulatory history of the protection of essential fish habitat (EFH) and its integration into Federal fishery management actions.

- Second, it discusses the past, present, and reasonably foreseeable future actions affecting EFH in the Atlantic region.

- Third, it summarizes past, present, and reasonably foreseeable future management actions affecting EFH in the Atlantic region.

9.4.4.1 Management History

In conjunction with the 1996 reauthorization of the MSA through the Sustainable Fisheries Act, Congress amended the MSA by codifying elements of the Habitat Conservation Plan (50 CFR 605.805). Specifically, the 1996 amendments emphasized the importance of habitat protection in maintaining healthy fisheries and promulgated regulations to promote the protection, conservation, and enhancement of the habitats of marine, estuarine, and anadromous finfish, mollusks, and crustaceans. This habitat is termed "essential fish habitat" (EFH) and was broadly defined in the regulations to include "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Habitat Areas of Particular Concern (HAPCs) are described in the regulations as subsets of EFH. HAPCs are rare habitat areas of special ecological importance that are particularly susceptible to human-induced degradation or located in an environmentally stressed area. Designated HAPCs are not afforded any additional regulatory protection under the Act; however, Federal projects with potential adverse impacts on HAPCs will be more carefully scrutinized during the consultation process.

A second major component of the new habitat regulations required Fishery Management Councils, with guidance from NMFS, to amend their FMPs to describe and protect EFH, and to mitigate any adverse impacts potentially caused by fishing activities. In addition, the regulations provide fishery management options to help guide NMFS and the Councils in reducing adverse impacts on EFH, including, but not limited to, fishing equipment restrictions, time/area closures, and harvest limits.

After the passage of the 1996 amendments, NMFS began development of a final rule implementing the proposed regulations on essential fish habitat. On January 9, 1997 (62 FR 1306) NMFS announced the availability of the "Framework for the Description, Identification, Conservation, and Enhancement of Essential Fish Habitat" (Framework). Over the next year, NMFS held public meetings, briefings, and workshops across the nation to refine the Framework and the pending rule. On December 19, 1997, NMFS issued an interim final rule (62 FR 66531) and on January 20, 1998 the interim final rule took effect. The interim final rule required the Councils to amend fishery management plans by October 1998 and specifically to:

- Describe and identify the essential habitat for species managed by the Council;
- Minimize, to the extent practicable, adverse effects on EFH caused by fishing; and
- Identify other actions to encourage the conservation and enhancement of EFH.

In the Northeast, EFH has been identified for a total of 59 species covered by 14 fishery management plans (FMPs), under the auspices of either the New England Fishery Management Council, Mid-Atlantic Fishery Management Council, South Atlantic Fishery Management Council, or NMFS. A complete list of managed species with EFH designations in the Northeast, as well as other important habitat parameters, is available at: http://www.nero.noaa.gov/hcd/ .

After a five-year public review process, NMFS published a final EFH rule on January 17, 2002, replacing the interim final rule of December 19, 1997. The final rule directs the Councils to conduct periodic reviews of the EFH provisions (including HAPCs) of FMPs and revise or amend EFH provisions as warranted. Furthermore, the regulations specify that a complete review of all EFH information should be conducted at least once every five years.

9.4.4.2 Past, Present, and Reasonably Foreseeable Future Actions Affecting Essential Fish Habitat

This section summarizes past and present events affecting essential fish habitat. Events are defined as activities or occurrences that have or had the potential to induce one or more of the following potential effects: alteration of the physical structure; direct mortality of benthic organisms; sediment suspensions; physical and chemical modifications to the water column; benthic community changes; or ecosystem changes. Events can be either external or internal to the trap/pot and gillnet fisheries. In addition, external events can be either human controlled or natural. Past and present events discussed in the section include:

- Fishing gear impacts;
- Dredging;
- Offal discharge;
- Vessel groundings;
- Port construction and development;
- Oil and/or hazardous materials release;
- Exotic species;
- Toxic algal blooms; and
- Storm surges and wind generated waves.

Fishing Gear Impacts

The main classes of fishing gear used in the Atlantic EEZ can be separated into two groups: mobile fishing gear such as trawls, and fixed fishing gear such as longline, gillnet, and traps/pots. Each gear type has several components or characteristics that determine its overall effect on the benthic environment. In addition, effects of the gear are dependent on the current condition or health of the substrate and associated organisms, and their ability to rebound from external disturbances.

Mobile Fishing Gear

The effects of bottom trawling and other mobile fishing gears on the physical structure of the benthos, sediment suspension, the chemical and physical composition of the water column, and benthic biodiversity (community structure) include changes to living and non-living habitats and potential impacts on prey. External events related to bottom trawling include foreign

fisheries (both pre-and post-MSA), as well as bottom trawling conducted in state waters (past and present). Internal events include the operation of domestic groundfish fisheries under the multispecies FMP.

Otter trawls are one type of mobile trawl gear common to the Atlantic EEZ. Otter trawls fish by pulling conical nets through the water; fish encounter the open forward end and are gathered into a restricted bag or "codend" at the back of the net. Otter trawls, especially those that fish along the bottom for groundfish, have four main components that can connect with the seabed: doors, sweeps, footrope, and netting.

Doors are flattened metal structures that ride vertically in the water column; their sheer weight and force through the water act to horizontally spread the net open and force it down in the water. Some bottom trawl doors use contact with the seafloor to accomplish the spreading and downward pull. On pelagic trawls, the net is pulled above the seafloor and the doors are unlikely to contact the bottom. Trawl doors used in the Atlantic EEZ are typically less than nine feet long.

Sweeps are steel, fiber, or some combination of steel and fiber cables that connect the doors to the trawl net. The cables pass over the bottom at a narrow angle from the direction of travel and herd near-bottom fish toward the net. When used on bottom trawls, these cables commonly come into contact with the seafloor and often have protective disks strung on them. Sweep lengths will vary with the target species fished, substrate characteristics, and individual vessel preference. For example, a large vessel targeting flounder on a smooth bottom may use 1,000 feet of sweeps, while a small cod trawler on rough bottom may only use 100 feet.

The footrope of the trawl is a cable or chain connected along the bottom edge of the trawl net and, on bottom trawls, is designed specifically to contact the seafloor. The footrope usually has rubber cones, spheres, or disks (known collectively as "bobbins") strung along its entire length. The bobbins serve to limit damage to the netting and reduce bycatch of crabs and other invertebrates. Alternatively, tire gear is used in the center net section, particularly when the preferred fishing grounds consist of a rough substrate, to protect the netting and allow fishing in areas where otherwise it would not be possible. Tire gear consists of used vehicle tires or sections of tires linked side-by-side to form a continuous cylinder.

The netting is the least likely component of bottom trawls to directly contact the seafloor. The bobbins or tire gear act to raise the netting so that only very prominent features of the seafloor could come into contact with the netting without entering the trawl. However, the codend can come into contact with the seafloor, particularly when it contains rocks, substrate, or numerous fish.

The pelagic trawl is a specially modified otter trawl designed for catching fish that inhabit the water above the seabed. These trawls have a very large mesh opening in the forward section and the doors are fished above the bottom. By regulation, these trawls must not use bobbins or other protective devices; therefore, the footropes are small in diameter, and typically consist of bare chain. Since these trawls are fished with the doors above the seafloor, door effects on substrates are not realized. Because the footrope is unprotected, pelagic trawls are not

used on rough or hard substrates and, therefore, are less likely to contact some of the more vulnerable habitats.

Fixed Gear

Fixed gear fisheries, such as gillnet and trap/pot pot fisheries, affect living and non-living benthic physical structure, cause direct mortality of benthic organisms, resuspend sediment, and, if extensive, modify epifaunal and infaunal prey in localized areas. It is unlikely that these fisheries would cause ecosystem-wide effects because of the short-term, site-specific sets of the fixed gear. Activities or events that employ fixed gear include: the various state-managed trap/pot fisheries for lobster, crab, and shrimp; the various fixed gear fisheries managed within the Atlantic EEZ, including American lobster, red crab, Jonah crab, hagfish, and black sea bass; and anchored gillnet fisheries managed under the multispecies, monkfish, and dogfish FMPs. Chapter 2 provides a description of the fixed gear used in ALWTRP regulated fisheries and fisheries proposed to be managed under the ALWTRP.

Dredging

Dredging is the action of bringing up sediment from the ocean floor either to deepen navigation channels or to harvest shellfish such as clams and scallops. Dredging has the potential to change non-living and living habitat, and to affect epifaunal and infaunal prey. These activities can also resuspend large amounts of sediment and can potentially change the chemical and physical composition of the water column. If widespread and chronic, these actions can cause overall changes to the benthic community.

Offal Discharge[49]

Offal discharge events have occurred in trap/pot and gillnet fisheries both externally and internally. This discharge can alter the physical structure of the benthos, smother benthic organisms, resuspend sediment, alter the chemical and physical composition of the water column, and, if extensive, cause impacts to the benthic community or ecosystem. The latter two effects are more likely in a closed bay or system where water circulation is impeded. In addition, significant amounts of deposition can decrease the oxygen available to benthic organisms, creating anoxic conditions that only a few species (e.g., polychaetes) can survive.

[49] Offal is defined as all dead and discarded catch and fish by-catch.

Vessel Groundings

Vessel groundings, both within and external to the trap/pot and gillnet fisheries, influence the physical structure of the benthos and cause direct mortality of benthic organisms. If extensive, these impacts could lead to changes in the benthic community on a very localized, site-specific scale. Therefore, it is unlikely that ecosystem impacts would be realized due to vessel groundings and there are no documented impacts of vessel groundings on EFH.

Port Construction and Development

Port construction and development has occurred along the Atlantic coast and is likely to have caused the following impacts on the benthic community: alteration of physical structure, direct mortality, sediment re-suspension, chemical and physical modification of the water column, and localized changes in community structure. The localized, site-specific nature of these events, however, makes it unlikely that they would adversely affect overall ecosystem health.

Oil and/or Hazardous Materials Releases

Releases of oil and/or hazardous pollutants into the Atlantic EEZ range from small (less than ten gallon) spills to those of significantly greater magnitude, such as the 35,000 to 55,000 gallon oil spill that occurred on April 27, 2003 in Buzzards Bay (Massachusetts). Large spills cause direct mortality, alter the chemical composition of the water column, and cause changes to the structure of the benthic community.

Oil spills may cover and degrade coastal, inshore and offshore habitats and associated benthic habitats, or may produce a surface slick which disrupts the pelagic community. These impacts can eventually lead to disruption of community organization and dynamics in affected regions. Oil can persist in sediments for years after the initial contamination. Non-point sources of oil include municipal and agricultural run-off, industrial shipping, recreational boating, and contaminated sediments. Point sources include power plant discharge, marine transportation (i.e., ferries, freighters, and tankers), energy and mineral exploration and transportation, and ocean disposal of contaminated dredged material.

Other hazardous pollutants, such as metal contaminants, pesticides and herbicides, and chlorine, can also be found in the water column and persist in the sediments of coastal, inshore, and offshore habitats.

Exotic Species

Introduction of non-native, or exotic, organisms can alter the biological and physical composition of freshwater and marine habitats (Rosecchi et al., 1993; Whitman, 1996). The issue of the introduction of exotic or reared species, including finfish, shellfish, plants, and

parasites, in the wild is a major concern, and possibly the largest single problem faced by aquaculturists, ecologists, and resource managers (deFur and Rader, 1995). Reared and exotic organisms have been released from aquaculture facilities accidentally and intentionally (e.g., stocking programs) (Bedzinger, 1994). The natural community structure may be changed through increased competition, niche overlap, predation on indigenous organisms, decreased genetic integrity, and transmission of disease. Several methods, including producing sterile organisms and escape-proof facilities, are being developed to lessen the ecological threats associated with exotic and reared organisms (Conkling and Hayden, 1997; MCZM, 1995).

Toxic Algal Blooms

Nutrient over-enrichment can lead to organic loading and eutrophic conditions in the water column and benthos. Eutrophication has been associated with the appearance of serious toxic algal blooms throughout the Atlantic EEZ. These external events alter the physical and chemical composition of the water column and can cause mortality to benthic and pelagic organisms. The term "toxic algal blooms" applies not only to toxic microscopic algae, but also to non-toxic macroalgae (i.e., seaweeds), which can grow uncontrollably and cause ecological impacts such as displacing indigenous species, altering habitat suitability, and depleting oxygen. However, long-term community and ecosystem changes are not likely because the community has adapted to their occurrence and, unless already stressed by other factors, can rebound. On the other hand, if unable to rebound, impacts include alterations of marine food chains through adverse effects on eggs, juvenile and adult marine invertebrates (e.g., corals, sponges), sea turtles, seabirds, and mammals.

Storm Surges and Wind Generated Waves

Storm surges and wind generated waves are external events that are likely to affect EFH through physical alteration of the bottom structure as well as chemical and physical modifications of the water column. However, unless the duration of these events is extensive, or they occur in conjunction with other events known to stress the environment, community and ecosystem changes typically are not realized.

9.4.4.3 Management Actions Affecting EFH

This section summarizes management actions influencing essential fish habitat. Management actions are defined as regulations and other specific management decisions that have the potential to mitigate alteration of the physical structure; direct mortality of benthic organisms; sediment suspensions; physical and chemical modifications to the water column; benthic community changes; and ecosystem changes. This section is divided into two sections: external management actions and internal management actions.

9.4.4.3.1 External Management Actions Affecting EFH

External management actions are those determinations or regulations that have been enacted by agencies or governments outside of the jurisdiction of NMFS and the Councils. These actions have the potential to affect EFH in either a positive or negative manner. The following past and present external management actions have the potential to impact EFH:

- the Clean Water Act;
- the Coastal Zone Management Act of 1972;
- the Marine Protection, Research, and Sanctuaries Act of 1972;
- the Oil Pollution Act of 1990; and
- international laws regarding marine pollution.

Descriptions of each action are provided in the section discussing the impact of water pollution on Atlantic large whales, Section 9.4.1.4.

9.4.4.3.2 Internal Management Actions Affecting EFH

Internal management actions are determinations or regulations that have been enacted by NMFS or the Councils. Internal actions that can clearly benefit EFH include measures such as area closures (depending upon size of area, time closed and habitat type within), gear restrictions/alterations, permitting restrictions, reductions in effort allowed or days at sea (DAS), and possession/trip limits. Some measures such as effort monitoring, crew limits, onboard observers, recreational measures, and Total Allowable Catch (TAC) limits may also benefit habitat. Other measures, such as an increase in fish and mesh size limits, although they are designed to meet stock rebuilding objectives, may have negative habitat effects since they may encourage increased fishing effort to meet catch limits if DAS are not limiting.

This section summarizes internal management actions in the Atlantic EEZ to protect EFH in the New England, Mid-Atlantic, and South Atlantic regions.

New England EFH Management Actions

The NEFMC is responsible for the management of fishery resources in Federal waters off Maine, New Hampshire, Massachusetts, Rhode Island and Connecticut. FMPs developed by the NEFMC include plans for Atlantic salmon, Northeast multispecies, sea scallop, Atlantic herring, monkfish, Northeast skate complex, and Atlantic deep-sea red crab.

The first action from the New England Fishery Management Council came with the release of the Omnibus EFH Amendment of 1998 (Omnibus Amendment I). Omnibus Amendment I identified and described the EFH for all species managed by the Council to better

protect, conserve, and enhance this habitat. The EFH descriptions and identifications for New England FMPs were approved on March 8, 1999 for Atlantic salmon (Amendment 1), Northeast multispecies (Amendment 11), and Atlantic sea scallop (Amendment 9). The FMPs for Atlantic deep-sea red crab (2002) and the Northeast skate complex (2002) established EFH descriptions for those fisheries after Omnibus Amendment I was implemented. General provisions implemented through these FMP Amendments include:

- **Vessel Restrictions**: This measure limits the horsepower and size of fishing vessels being replaced or upgraded.

- **Gear and Crew Restrictions**: Restricts the number of crew allowed on a vessel; has an indirect habitat effect by limiting effort.

- **Days-at-Sea Allocations**: Limits overall fishing time and indirectly protects habitat by causing an overall reduction of fishing effort associated with the gears and methods likely to affect habitat.

- **Closed Areas**: Numerous fishery closures and/or restrictions that protect benthic habitat exist in the EFH of various NEFMC-managed fisheries.

Since initial implementation of the Omnibus EFH provisions, the Council has approved the following measures to protect EFH associated with New England fisheries:

- **Amendment 13 to the Northeast Multispecies FMP**: Significant measures implemented to protect essential fish habitat for the groundfish fishery include effort reductions through significant DAS reductions and seasonal closures, as well as closure of habitat areas to all bottom-tending mobile gear.

- **Amendment 10 to the Atlantic Sea Scallop FMP**: Significant measures implemented to protect essential fish habitat for the sea scallop fishery include effort reductions through significant DAS reductions and rotation management; closure of habitat areas to scallop dredge gear; and gear modifications.

- **Framework 16/39 for the Sea Scallop/Northeast Multispecies FMPs**: A significant portion of this framework is devoted to designating the boundaries for habitat closed areas so that the areas are the same for both fisheries, which is not the case under Amendments 10 and 13.

- **Amendment 2 to the Monkfish FMP**: Significant measures to minimize the impacts of gear effects on monkfish EFH include gear modifications and closed areas.

The guidelines implementing the MSA's EFH provisions require the Councils to review and revise EFH components of FMPs at least once every five years. On February 24, 2004, the

New England Fishery Management Council, in cooperation with NMFS, published a notice of intent (NOI) to prepare a programmatic EIS and a second Omnibus Amendment to the FMPs for Northeast Multispecies, Atlantic Sea Scallop, Monkfish, Herring, Skates, Atlantic Salmon and Red Crab. Omnibus Amendment II will review the EFH components of all the FMPs managed by the Council, including:

- The identification and consideration of new Habitat Areas of Particular Concern (HAPCs) and Dedicated Habitat Research Areas (DHRA);
- The integration of alternatives to minimize any adverse effects of fishing on EFH for all species managed by the Council;
- A review of the groundfish closed areas, due to the significant amount of spatial overlap between the two types of closed areas; and
- An analysis of the impacts of any proposed management measures.

In September 2005, NMFS and NEFMC initiated Omnibus Amendment 2 and published a supplemental NOI to propose a two-phase approach (70 FR 53636). As proposed, the first volume of the EIS will review and update EFH designations and HAPCs; this volume will also update non-fishing impacts and review research and information needs. The second volume of the EIS will review and update existing gear effects evaluations and associated management measures for reducing impacts on EFH. However, in 2009, a second supplemental NOI (74 FR 51126) proposed to recombine the two phases of Omnibus Amendment II and NMFS and the Council will publish a single EIS for Omnibus Amendment II in 2014. Two more supplemental NOIs have been published that announced that (1) the NEFMC added consideration of the groundfish closed areas into the development of Omnibus Amendment II due to significant spatial overlap with the EFH closed areas (76 FR 35408), and that (2) the NEFMC was considering removing consideration of management of deep-sea corals to a separate amendment (77 FR 44214).

These EFH and HAPC alternatives were developed by the Habitat Plan Development Team (PDT) and Committee between 2004 and 2007, and substantially approved by the Council in June 2007. The Habitat PDT made minor updates to some of the EFH maps and text descriptions during 2010 and 2011, and these changes were approved by the Committee. A few additional updates are pending. All of these alternatives will receive final Council review and approval when the entire EFH Omnibus Amendment is complete. The designations would affect the following FMPs:

- Amendment 14 to the Northeast Multispecies FMP
- Amendment 14 to the Atlantic Sea Scallop FMP
- Amendment 4 to the Monkfish FMP
- Amendment 3 to the Atlantic Herring FMP
- Amendment 2 to the Red Crab FMP
- Amendment 2 to the Skate FMP
- Amendment 3 to the Atlantic Salmon FMP

The Habitat PDT and Committee have developed a new set of habitat management areas designed to minimize adverse effects on EFH from fishing to the extent practicable. Another Council group, the Closed Area Technical Team (CATT), has developed a new set of groundfish closed areas. Throughout 2013, the Habitat PDT and Committee in conjunction with the CATT and the Groundfish Oversight Committee will discuss how to most appropriately combine these two sets of management areas to meet both the goals of EFH management and groundfish stock rebuilding. Omnibus Amendment II is scheduled for final implementation in December 2014.

Mid-Atlantic EFH Management Actions

The MAFMC is responsible for the management of fishery resources in Federal waters off New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina. The description and identification of EFH and HAPCs for MAFMC managed species were approved on April 28, 1999 for Atlantic surfclam and ocean quahog (Amendment 12); Atlantic mackerel, squid and butterfish (Amendment 8); and summer flounder, scup, and black sea bass (Amendment 12). EFH descriptions and identifications for Atlantic bluefish (Amendment 1) were approved on July 29, 1999. Spiny dogfish EFH descriptions and identifications were approved on September 29, 1999, and tilefish EFH descriptions and identifications were approved on May 10, 2001. The Council continues to update EFH descriptions and asses gear impacts on EFH. As of September 29, 2011 the following amendments pertaining to EFH are pending a council recommendation or review:

- Amendment 11 to the Squid/Mackrel/Butterfish FMP
- Amendment 4 to the Bluefish FMP
- Amendment 3 to the Dogfish FMP
- Amendment 15 to the Surfclam and ocean quahog FMP

The Council has implemented many regulations that have indirectly acted to reduce fishing gear impacts on EFH. For fisheries designated as overexploited, a number of management measures have been implemented that result in a reduction of fishing effort, such as harvest limits, gear restricted areas, and gear restrictions. These measures translate to a reduction in gear impacts that can adversely affect habitat.

South Atlantic EFH Management Actions

The SAFMC is responsible for the management of fishery resources in Federal waters off the coasts of North Carolina, South Carolina, Georgia, and east Florida to Key West. The description and identification of EFH and HAPCs for SAFMC managed species were approved on June 3, 1999 in the Comprehensive Habitat Amendment for snapper/grouper (Amendment 10); Atlantic coast red drum (Amendment 1); Atlantic shrimp fishery (Amendment 3); Atlantic coral, coral reefs, and live/hard bottom habitats (Amendment 4); Atlantic golden crab (Amendment 1); spiny lobster (Amendment 5); and the coastal migratory pelagics fishery (Amendment 10).

The SAFMC has taken a leading role in the protection of habitat essential to managed species in the South Atlantic. Examples of regulations that directly and indirectly impact South Atlantic EFH include:

- **Amendment 4 to the FMP for Coral, Coral Reefs, and Live/Hard Bottom Habitats**: Through the implementation of the Coral FMP, and subsequent amendments to that plan, the Council has protected coral, coral reefs, and live/hard bottom habitat in the South Atlantic region. Significant measures implemented in this plan include establishing an optimum yield of zero and prohibiting all harvest or possession of these resources, which serve as essential fish habitat to many managed species.

- **Oculina Bank Habitat Area of Particular Concern**: Another significant measure implemented by the SAFMC is the designation of Oculina Bank as a HAPC. Oculina Bank is a unique and fragile deepwater coral habitat off southeast Florida that is protected from damage by all bottom tending fishing gear.

- **Amendment 10 to the FMP for the Snapper-Grouper Fishery**: To protect EFH, the snapper-grouper FMP prohibits the use of the following gear: bottom longlines in the EEZ inside of 50 fathoms or anywhere south of St. Lucie Inlet, Florida; fish traps; bottom tending (roller-rig) trawls on live bottom habitat; and entanglement gear.

Other actions taken by the Council that directly or indirectly protect habitat or ecosystem integrity include the prohibition of rock shrimp trawling in a designated area around the Oculina Bank; mandatory use of bycatch reduction devices in the penaeid shrimp fishery; a prohibition on the use of drift gill nets in the coastal migratory pelagic fishery; and a mechanism that provides for the concurrent closure of the EEZ to penaeid shrimping if environmental conditions in state waters are such that the overwintering spawning stock is severely depleted.

The SAFMC engaged in a review of all EFH information for South Atlantic fisheries. As was done in developing the original 1998 Habitat Plan, Council habitat staff are conducting a series of technical workshops. The purpose of these workshops is to review the information presented in the 1998 Habitat Plan and update EFH information as necessary. In particular, SAFMC efforts are aimed at integrating comprehensive details of habitat distribution and the biology of managed species, including the characteristics of the food web in which managed species exist. As a result of these workshops SAFMC developed the South Atlantic Council Fishery Ecosystem Plan (FEP) and moved toward habitat conservation through ecosystem based management (EBM). The FEP significantly expands and updates the SAFMC Habitat Plan (SAFMC 2009). The FEP will serve as a source document for future amendments to the FMPs.

9.4.4.4 Summary of Factors Affecting Habitat

Exhibit 9-16 summarizes the major past, present, and reasonably foreseeable future management actions that may affect essential fish habitat.

Exhibit 9-16

SUMMARY OF FACTORS AFFECTING HABITAT

Potential Effects on Habitat[1]	Major Past, Present and Reasonably Foreseeable Future (PPRFFAs) Actions	Effect of PPRFFAs
Alteration of physical structure	• External management actions include the CWA, CZMA, MPRSA, OPA, and international laws • Management actions have been taken by all fishery management councils in New England, the Mid-Atlantic, and the South Atlantic. Examples of actions taken include area closures, gear restrictions, and effort reductions. The NEFMC and the SAFMC will be reviewing and revising the EFH components of all FMPs under their authority in the future.	Positive
Mortality of benthic organisms		
Changes to the benthic community and ecosystem		
Sediment suspension		
Trap loss and ghost fishing		

Notes:
[1] The potential impacts analyzed here are outlined in further detail in Section 4.4.

9.4.5 Fishing Dependent Communities

This section examines the impact of past, present, and reasonably foreseeable future management actions on the communities that are engaged in ALWTRP-regulated fisheries. Nine of the twelve affected fisheries are discussed:[50]

- American lobster;
- Northeast multispecies;
- Monkfish;
- Spiny dogfish;
- Shark;
- Coastal migratory pelagic species;
- Black sea bass;
- Red crab; and
- Scup.

[50] The remaining three fisheries, hagfish, Jonah crab, and conch/whelk, are not yet regulated under the MSA and thus, have experienced no significant management actions. In all three cases, however, increased pressure on the resource due to the movement of vessels into the fishery could prompt development of a fishery management plan in the near future.

For each of the fisheries, the discussion of fishing dependent communities is organized into two sections:

- The first presents a summary of fishing communities engaged in the fishery.
- The second summarizes the impact of past, present, and reasonably foreseeable future management actions on fishing dependent communities.

The information presented in this section is based primarily on fishery management plans prepared by the National Marine Fisheries Service and the fishery management councils, including the New England Fishery Management Council (NEFMC), the Mid-Atlantic Fishery Management Council (MAFMC), the South Atlantic Fishery Management Council (SAFMC), and the Atlantic States Marine Fisheries Commission (ASMFC).

9.4.5.1 American Lobster

Lobster has consistently ranked among the Atlantic coast's most commercially important species. In 2009 the annual revenue was estimated at $299.5 million. Landings over the past decade have increased from about 60 million pounds in the early 1990s to 97 million pounds in 2009. This dramatic increase is due to several factors, including an increase in the total area and number of traps/pots fished; advancements in trap technology; and increased entrance of new fishermen into the lobster industry.[51] Scientists believe that the lobster resource is being overfished and that subsequent years of record high landings may push the fishery to collapse.

Fishing Communities

Generally, community dependency on lobster fishing, and more specifically lobster trap fishing, decreases from north to south. While industry participants from downeast (northern) and mid-coast Maine are largely dependent on lobster, lobstermen from southern Maine, Massachusetts and Rhode Island are proportionately less reliant on lobster compared to other fisheries. The community dependency on lobster fishing decreases dramatically south of Rhode Island, and landings of lobster from Connecticut to North Carolina accounted for less than three percent of coastwide landings in 2008 (ASMFC, 2009). Of the approximately 3,152 Federal lobster permits in 2008, 2,311, or about 73 percent hail from Maine and Massachusetts ports. Consequently, vessels from these two states land about 90 percent of the total U.S. lobster harvest (ASMFC, 2009).

[51] Advancements in trap technology include a switch to more effective wire traps instead of wood traps; increased trap size; changes in trap design (most notably the rise of “double parlor” traps); and increased soak time (ASMFC, 1997).

Effects of Management Actions on Fishing Dependent Communities

The American lobster fishery is governed through both interstate (ASMFC) and Federal management systems (NMFS). Addendum I to the Interstate Fishery Management Plan under the ASMFC went into effect in August 1999. This action established a trap limit of 800 traps per vessel for LMA 1 (the Northern New England coast) and controls on fishing effort in LMAs 3, 4, and 5.[52] On March 27, 2003, NMFS issued a final rule implementing Federal regulations consistent with Addendum I. Major provisions implemented in this action include:

- Limits on the number of vessels to be issued Federal lobster permits, based on historical participation criteria.

- Controls on fishing effort by limiting vessels permitted to fish in LMAs 4 and 5 to a maximum of 1,440 traps each; limiting those permitted to fish in the Federal waters of LMA 1 to a maximum of 800 traps each; and establishing a four-year trap reduction schedule in LMA 3.

From a socioeconomic standpoint, the most significant of these provisions is the trap reduction schedule implemented in LMA 3. Under Addendum I, the number of traps fished by Federal permit holders in LMA 3 will be reduced from an estimated 105,821 traps in Year 1 to 96,419 traps in Year 4. The plan contains an initial cap of 2,656 traps per vessel. Vessels that were previously allocated more than 1,200 traps will see their allocations reduced over a four-year period. These reductions will be implemented on a sliding scale, based on historical participation, and will provide each vessel a minimum allocation of 1,200 traps. Vessels that were previously allocated fewer than 1,200 traps (approximately 11 percent of qualifying vessels) are capped at historic qualifying levels, and will not be permitted to exceed this limit in future years. These provisions will reduce the number of traps fished by approximately 20 to 35 percent relative to 1997 and 1992 levels, respectively.

The LMA 3 trap reduction schedule was designed to mitigate the socio-economic impacts of this action to reduce fishing effort. Specifically:

- The trap reduction schedule was designed to maintain the permit holder's market share at historic levels; and

- Trap reductions are imposed over a four-year period in an effort to soften the economic impact and minimize sudden and immediate financial hardship.

On June 1, 2012, NMFS issued a final rule establishing a limited entry program for LMA1. The limited entry program established to dissuade a potential flood of new fishers in LMA1 that could upset lobster stock stability and undermine social and cultural fishing

[52] This action and all interstate actions under the ASMFC are not bound by Federal regulations to conduct an environmental impact statement under the National Environmental Policy Act (NEPA). Therefore, no Federal analyses of the economic or social impacts of these actions were prepared.

traditions. At the time of the proposed rule, the draft EA (now final) showed that 1,643 Federal lobster permits will likely qualify under this action. According to the draft and final EA, of the 3,152 Federal lobster permits in existence, 1,509 permit holders will likely not qualify into the Area 1 trap fishery. Of this 1,509 total, the vast majority (1,419 permit holders) are from locales south of Area 1 waters and/or have never sought to fish with traps in Area 1 in the past.

While it is difficult to discern the overall socioeconomic impacts of these restrictions, it is clear that the lobster fishery is unlikely to continue the growth and revenue trends realized in the 1990s. Additional restrictions on access and reductions in effort are expected to continue in order to prevent overexploitation of the lobster resource. Fishermen and fishing communities active and/or dependent on the lobster resource in LMA 2 and 6 may be particularly vulnerable to increased regulatory costs as a result of the 1999 mass mortality event in Long Island Sound.

9.4.5.2 Northeast Multispecies

For centuries, Atlantic groundfish stocks have supported a fishery that has served to shape the economy and culture of New England. Development of advanced gear technologies, electronic navigation, fish-finding tools, and increased vessel power during the 20th century greatly expanded the New England groundfish fishery. In response to these pressures, Amendment 5 (1994) to the Multispecies FMP capped fishery participation and established additional measures to reduce fishing effort. Subsequently, between 1995 and 2000, commercial landings of groundfish increased 19.4 percent. The value of commercial groundfish landings in the year 2002 was approximately $114 million.

Since the implementation of Amendment 5 in 1994, the aggregate biomass of New England groundfish stocks has nearly tripled, increasing from 161,217 metric tons (mt) in 1994 to 451,346 metric tons in 2000 (NEFMC, 2004b). Among the species that have demonstrated dramatic increases since 1994 are Georges Bank haddock, yellowtail flounder, and winter flounder. For other stocks, however, little progress has been made, as harvest levels remain too high and further regulations are required to reduce fishing mortality. The stocks requiring the largest reduction in fishing mortality are Gulf of Maine cod, Georges Bank cod, Cape Cod/Gulf of Maine, yellowtail flounder, Southern New England/Mid-Atlantic yellowtail flounder, Southern New England/Mid-Atlantic winter flounder, white hake, window pane flounder (Gulf of Maine and Georges Bank), and witch flounder.

Fishing Communities

While there are over 100 communities that are homeport to one or more Northeast groundfish vessels, the multispecies fleet is dominated by vessels with home ports in Massachusetts and Maine. In general, larger vessels have home ports in southern states (North Carolina, Virginia, and Florida) while smaller vessels are based in northern states (Massachusetts, New Hampshire, and Maine). Maine, New Hampshire, Massachusetts and Rhode Island vessels landed 97.4 percent of the groundfish in FY 2009. Permitted multispecies vessels with home ports in some southern New England and Mid-Atlantic states, though contributing a high percentage of landings to the total, are less active than Maine and New Hampshire vessels in the groundfish fishery. States in southern New England and the Mid-

Atlantic may be more dependent on non-groundfish fisheries such as scup, squid, mackerel and butterfish.

Groundfish landings have fluctuated in recent years. Landings declined from 80 million pounds in FY 2004 to 50 million pounds in FY 2006. Landings increased in FY 2008 to 66 million pounds only to decrease again in FY 2009 to 63 million pounds (Exhibit 9-17). In 2009, the dockside value of these groundfish landings was slightly less than $60 million.

In the Environmental Assessment for the proposed regulations to implement Framework Adjustment 46 to the Multispecies Fishery Management Plan, NMFS examined groundfish landings by port from 2001-2009 to identify primary and secondary communities engaged in the groundfish fishery. Primary communities are identified as those substantially engaged in the groundfish fishery based on historical participation and landings and which are most likely to be affected by any groundfish measures under the changes. Secondary communities are those that may not be substantially dependent or engaged in the groundfish fishery, but have demonstrated some participation in the fishery since the 1994 fishing year. Exhibit 9-18 provides a summary of the available information on these primary and secondary communities.

Exhibit 9-17

GROUNDFISH LANDINGS (lbs) BY MULTISPECIES VESSELS BY HOME PORT STATE (2001-2009)

State	2001	2002	2003	2004	2005	2006	2007	2008	2009
Massachusetts	67,392,307	54,942,388	50,527,509	50,702,142	40,489,242	30,784,454	37,684,924	44,257,818	43,238,152
Maine	15,319,317	11,649,857	12,854,761	12,348,854	11,565,820	8,611,001	11,240,196	12,075,418	11,641,998
New Hampshire	4,712,053	3,313,107	3,445,717	3,346,377	3,170,158	2,795,023	3,944,409	5,245,665	4,899,354
Rhode Island	7,239,855	7,225,382	7,596,776	6,114,406	5,319,875	3,661,606	3,611,712	2,616,902	2,048,790
New York	4,199,723	3,589,125	3,373,185	1,722,950	1,315,094	1,016,606	961,635	854,854	481,209
New Jersey	854,198	502,831	658,452	657,135	599,466	557,385	517,943	386,225	414,864
Connecticut	115,152	206,295	205,084	44,916	20,744	91,739	189,999	218,419	101,390
North Carolina	1,254,276	866,766	1,010,968	1,356,537	1,113,425	410,869	359,894	492,204	621,199
All Others	2,331,412	1,181,468	1,351,027	988,235	675,494	458,319	413,725	497,128	30,045
TOTAL:	**103,418,293**	**38,477,219**	**81,023,479**	**77,281,552**	**64,269,318**	**48,387,002**	**58,924,437**	**66,644,624**	**63,477,001**

Source: NEFMC, 2011

Exhibit 9-18

NORTHEAST MULTISPECIES FISHING COMMUNITIES

Area (Counties)	Primary Ports	Number of Secondary Ports
Downeast Maine (Washington County)	None	7
Upper Mid-Coast Maine (Hancock, Waldo, and Knox Counties)	None	15
Lower Mid-Coast Maine (Lincoln, Sagadahoc, and Cumberland Counties)	Portland	22
Southern Maine (York County)	None	9
State of New Hampshire (Rockingham and Strafford Counties)	Portsmouth	4
Gloucester and North Shore, MA (Essex County)	Gloucester	8
Boston and South Shore, MA (Middlesex, Suffolk, Norfolk, and Plymouth Counties)	Boston	3
Cape and Islands, MA (Barnstable, Dukes, and Nantucket Counties)	Chatham/ Harwichport	12
New Bedford Coast, MA (Bristol County)	New Bedford/ Fairhaven	2
State of Rhode Island (Washington and Newport Counties)	Point Judith	10
State of Connecticut (New London, Middlesex, New Haven, and Fairfield Counties)	None	8
State of New York	Montauk, Hampton Bay,Shinnecock, and Greenport	6
State of New Jersey	None	15
TOTAL:	**11**	**121**
Source: NEFMC, 2011		

Effects of Management Actions on Fishing Dependent Communities

A review of 28 management actions since the first Multispecies FMP in 1977 shows a series of provisions and restrictions that have resulted in moderate to high adverse impacts on fishing dependent communities. Beginning in 1994 with Amendment 5, seven management actions have been implemented with high adverse impacts on fishing dependent communities. The significant provisions implemented in these actions have included drastic cuts in days-at-sea allocations, trip limits, and fishing closures. Exhibit 9-19 presents a summary of management actions from 1977 to 2012 resulting in moderate to high adverse impacts on fishing dependent communities.

Exhibit 9-19

CATEGORIZATION OF ACTIONS BY THE LEVEL OF IMPACT ON FISHING DEPENDENT COMMUNITIES (1977-2012)

Level of Impacts	Management Actions
Moderate	• Multispecies Plan (1986) • Emergency Action (1994) • Amendment 6 (1994) • Framework 20 (1997) • Framework 24 (1998) • Framework 26 (1999) • Interim Rule (1999) • Amendment 9 (1999) • Framework 31 (2000) • Framework 33 (2000) • Amendment 13 (2004) • Framework 45 (2011) • Framework 46 (2011)
Moderate-to-High	• Original FMP (1977) • Interim Plan (1982) • Amendments 1 – 4 (1987-1991) • Framework 27 (1999) • Framework 42 (2006) • Framework 47 (2012)
High	• Amendment 5 (1994) • Emergency Action (1994) • Framework 9 (1995) • Amendment 7 (1996) • Framework 25 (1998) • Interim Action – Settlement Agreement Part I (2002) • Interim Action – Settlement Agreement Part II (2002) • Amendment 16 (2010) • Framework 44 (2010)

A final rule implementing the measures in Amendment 13 to the Northeast Multispecies FMP became effective on May 1, 2004. The analysis of economic impacts presented in the Final Supplemental Environmental Impact Statement (FSEIS) made the following conclusions about the impact of Amendment 13 on fishing dependent communities:

- Those vessels or communities that are most dependent on groundfish will be most affected by the proposed action. These communities include the ports of Boston, Chatham/Harwichport, New Bedford, Portland, and Upper Mid-Coast Maine.

- Median revenue losses for gillnet and hook gear, expected to be 9.7 and 7.7 percent respectively, are much lower than for trawl gear, with an expected median revenue loss of 22.7 percent.

- Twenty-five percent of the vessels that claim Maine, New Hampshire, or Massachusetts as a homeport will lose at least one-third of gross revenues.

- For those vessels that rely on groundfish for seventy-five percent or more of their fishing revenue, the median expected revenue loss is thirty-five percent.

- Looking at impacts on vessels by size, the FSEIS concluded that the proposed action would have larger revenue impacts on large as compared to smaller vessels.

More specifically, gillnet gear groups would seem to be split between vessels that may experience significant revenue losses and vessels that may experience revenue gains. This disparity is likely due to differences in dependence on Georges Bank cod and Gulf of Maine cod. Because cod tends to represent a higher proportion of total fishing income for gillnet vessels, revenue is very sensitive to changes in cod trip limits

Amendment 16 was implemented in May 2010, extensively revised and expanded the use of sectors to mitigate (to the extent possible) the economic impacts. Amongst the changes were expanded requirements for sector operations plans, including detailed monitoring systems. Sector vessels are also granted a number of exemptions from existing effort control regulations in exchange for constraining catch to their allocated quotas. Seventeen sectors are now in operation, encompassing nearly half of the limited access northeast multispecies permits and over 90 percent of historical groundfish landings. Those groundfish vessels that did not join a sector are subject to trip limits drawing from the balance of the overall quota, or roughly 10 percent of the quotas for groundfish species, known as the common pool. Nearly half of all Federal groundfish vessels (714 of 1,473) participate in the common pool sector.

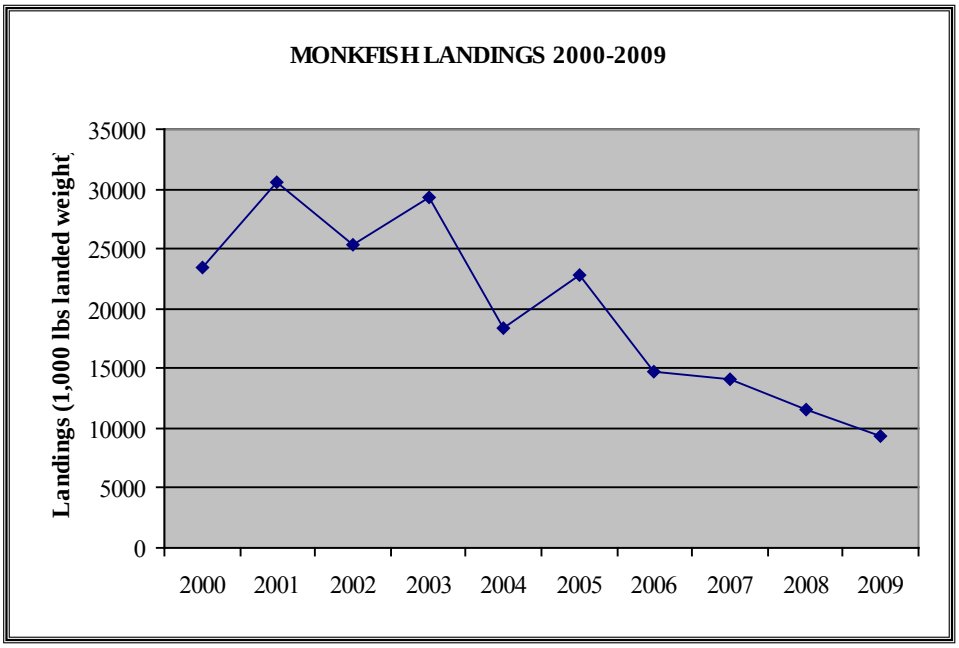
9.4.5.3 Monkfish

Traditionally, monkfish was taken as incidental catch in the groundfish and sea scallop fisheries, having little to no commercial value. Beginning in the late 1980s, commercial landings in the monkfish fishery increased dramatically in response to an increase in the market value of the species, combined with a decline in the abundance of traditional New England species.

Concern over management of the monkfish resource first arose in the early 1990s. In 1997, a stock assessment for the monkfish resource concluded the stock was over-exploited. The 2006 NEFMC Monkfish Stock Assessment and Fishery Evaluation (SAFE) report reviewed the status of the monkfish resource and found that monkfish are overfished in both the northern and southern areas (NEFMC/MAFMC, 2006).

Landings have declined each year since FY2005, and are approximately 40% of what they were at the peak in FY2003 (Exhibit 9-20).

Exhibit 9-20



Fishing Communities

Because of the nature of the monkfish fishery, the vessels and communities involved with it overlap with those involved with the multispecies (groundfish) and scallop fisheries. Many vessels that target monkfish or catch them incidentally also target groundfish or scallops. All but six percent of the limited access monkfish permit holders hold limited access multispecies or scallop permits.

The Monkfish SAFE report identifies both primary and secondary monkfish communities. Primary monkfish ports are defined as those averaging more than $1 million in monkfish revenues from 1994 to 1997 (based on dealer weighout data). Secondary communities are defined as those that averaged more than $50,000 in monkfish revenues from 1994 to 1997. Exhibit 9-21 summarizes the primary and secondary monkfish ports identified in the Monkfish SAFE report.

Exhibit 9-21

PRIMARY AND SECONDARY MONKFISH PORTS

Primary Ports	Secondary Ports
• New Bedford, MA • Portland, ME • Point Judith, RI • Gloucester, MA • Long Beach, NJ • Boston, MA	• Rockland, ME • Port Clyde, ME • South Bristol, ME • Ocean City, MD • Chatham, MA • Provincetown, MA • Scituate, MA • Plymouth, MA • Westport, MA • Portsmouth, NH • Point Pleasant, NJ • Cape May, NJ • Greenport, NY • Montauk, NY • Hampton Bay, NY • Newport, RI • Hampton, VA • Newport News, VA

Source: NEFMC 2011 b.

Effects of Management Actions on Fishing Dependent Communities

In 1998, NMFS approved the first Monkfish FMP with the objective of eliminating overfishing and rebuilding monkfish stocks. The FMP adopts a rebuilding strategy that takes place over ten years.

The FMP relies primarily on the implementation of a series of annual days-at-sea allocations over four years to reduce fishing mortality on monkfish stocks. An analysis of the economic impacts of the DAS reduction according to the ten-year rebuilding strategy was completed when the Monkfish FMP was approved in 1998. This analysis concluded that monkfish landings should be expected to be less than the status quo for eight years (i.e., from 1999 to 2007), until stock rebuilding allows for the harvest of higher yields. Gross revenues were also expected to decline, relative to status quo, through 2006, and then to begin recovering.

Past actions implemented under the Monkfish FMP have served to rebuild the fishery and neither the stocks in the northern or southern fishery management areas are overfished, nor is overfishing occurring. This management trend should continue through the adoption of the proposed biomass reference points which will be neutral or positive for monkfish stocks since, while not directly affecting fishing effort, provide the basis for monitoring stock status and achieving optimum yield from the fishery while preventing overfishing. The rebuilding of the monkfish resource over the past decade, along with the stability afforded by the multi-year specifications-setting process have had an overall positive effect on the affected human communities (NEFMC 2011b).

9.4.5.4 Spiny Dogfish

The spiny dogfish traditionally was considered an "under-utilized" species of relatively minor value to the domestic fisheries of the U.S. Atlantic Coast. With the decline of the groundfish fishery in recent years, an increase in directed fishing for dogfish resulted in a nearly ten-fold increase in landings from 1987 to 1996.

On April 3, 1998, NMFS declared spiny dogfish overfished. The agency approved the first Spiny Dogfish FMP on September 29, 1999 (effective April 3, 2000). To reduce fishing mortality, the Spiny Dogfish FMP contains a restrictive rebuilding schedule allowing only limited, incidental catch of dogfish until the stock is rebuilt. For the period from May 1, 2000 through April 30, 2002, the annual quota was set at 4 million pounds, with trip limits of 600 pounds and 300 pounds for quota periods I and II, respectively. NMFS proposed the same annual quota and trip limits for the 2003 fishing year beginning May 1, 2003.

The most recent peer-reviewed evaluation of the status of the Northwest Atlantic spiny dogfish stock was conducted at the 43rd Northeast Regional Stock Assessment Workshop. According to that assessment the spiny dogfish stock is not overfished and overfishing is not occurring and the stock is rebuilt (MAFMC 2008).

Fishing Communities

Spiny dogfish are landed in every state from Maine to North Carolina. However, prior to 1990, Massachusetts was responsible for the vast majority of commercial spiny dogfish landings. Beginning in 1989 (as the U.S. fishery expansion began), dogfish landings in the states of New Jersey, Maryland and Maine began to increase in importance. By 1996, the expansion of the spiny dogfish fishery had occurred in virtually every state in New England and the Mid-Atlantic, especially in North Carolina.

For fishing years 2000-2004 combined, the majority of commercial landings were made in Massachusetts ports (72 percent), with another percent made in New Jersey and North Carolina. Exhibit 9-22 identifies the primary ports of spiny dogfish landings from 2000 to 2005.

Exhibit 9-22

Major Spiny Dogfish Ports (2000-2005)

Primary Port	Commercial Landings (lbs)
Chatham, MA	2,186,000
Gloucester, MA	458,000
Provincetown, MA	258,000
Plymouth, MA	256,000
Hatteras, NC	149,000
Salisbury, MA	143,000
Point Judith, MA	126,000
Harwichport, MA	123,000

Source: MAFMC, June 2007

Effects of Management Actions on Fishing Dependent Communities

The rebuilding schedule identified in the original Spiny Dogfish FMP was expected to eliminate overfishing and rebuild the spiny dogfish stock in the shortest possible time. The management measures required to achieve this goal, however, are expected to have significant economic consequences for the fishery. The FMP establishes an annual quota on landings that will be maintained at under 4.4 million pounds until the target biomass is reached. According to the EIS for the FMP, this quota would result in a 30 percent reduction in landings in Year 1, leading to a decrease in gross revenues of greater than five percent for approximately 149 vessels and two processors. In Year 2, the quota will impose an 89 percent reduction in total landings (relative to the status quo) and 232 harvesters would face a reduction of revenues greater than five percent. The decline in landings could force at least 12 spiny dogfish harvesters to cease operations. In addition, the decline in volume would hamper processors' ability to process spiny dogfish in a cost-effective manner. This could result in the elimination of dogfish processing operations, the potential loss of approximately 200 jobs, and virtual elimination of the directed spiny dogfish fishery. These measures were deemed necessary, however, to restore the stock.

9.4.5.5 Directed Shark

In the Atlantic Ocean, the directed shark fishery is most active in southern waters. Authorized gear types include: pelagic or bottom longline, gillnet, rod and reel, handline, or bandit gear. However, shark gillnets are the only portion of the fishery that is affected by the ALWTRP. The authorized shark species in the Atlantic highly migratory species management include large coastal sharks (LCS) (blacktip, bull, lemon, nurse, spinner, silky, tiger, great hammerhead, smooth hammerhead, and scalloped hammerhead), small coastal sharks (SCS) (Atlantic sharpnose, blacknose, bonnethead, finetooth) and pelagic sharks (blue, common thresher, oceanic whitetip, porbeagle, shortfin mako). Overall, the status of the LCS and pelagic sharks complex are unknown. The SCS complex is not overfished and overfishing is not occurring.

The most recent stock assessment for individual shark species found that:

Exhibit 9-23
STATUS OF SHARK SPECIES

Shark Species	Overfishing? (Is fishing mortality above threshold?)	Overfished? (Is Biomass below threshold?)
Sandbar shark	No	Yes
Atlantic blacktip shark	Unknown	Unknown
Scalloped hammerhead shark	Yes	Yes
Atlantic Sharpnose shark	No	No
Bonnethead shark	No	No
Atlantic Blacknose shark	Yes	Yes
Finetooth shark	No	No
Dusky shark	Yes	Yes
Northwest Atlantic Porbeagle shark	No	Yes
North Atlantic Blue shark	No	No
North Atlantic Shortfin Mako shark	Approaching	Yes

*Source: 2011 Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species. Available at: http://www.nmfs.noaa.gov/sfa/hms/Safe_Report/2011/SAFE%20Report_FINAL_122011.pdf Accessed on 27 Sept 2012.
**Gulf of Mexico shark spp. were not included since the ALWTRP only affects Atlantic side fisheries.

Fishing Communities

The shark fisheries of the Atlantic and Gulf coasts extend from Maine to Texas, and include Puerto Rico and the U.S. Virgin Islands.

In Amendment 1, NMFS identified that, in 2001, there were 255 communities involved in the commercial shark fishery (both directed and incidental)[53]. This number is based on an analysis of commercial landings data, dealer permit data, and vessel permit data. Currently, fishermen in the states of Florida, Georgia, South Carolina, and Georgia, possess a total 277 incidental and directed shark permits[54]. These fishermen are located in 122 different cities throughout the southeast Atlantic United States. Communities where the directed shark fishery operates (including all gear types) and where this fishery overlaps with the ALWTRP action area include the following:

- **North Carolina**. There are 16 licensed shark dealers in North Carolina operating in 13 locations. There are 17 directed shark permits and 12 incidental shark permits held by fishermen in North Carolina.

[53] Consolidated Atlantic Highly Migratory Species Fisheries Management Plan. Amendment 1. Available at: http://www.nmfs.noaa.gov/sfa/hms/EFH/Final/FEIS_Amendment_Total.pdf. Accessed on 27 Sept 2012.
[54] NOAA Fisheries. Southeast Regional Office. Constituency Services Branch (Permits). Information available at: http://sero.nmfs.noaa.gov/permits/permits.htm. Accessed Sept 2012.

- **South Carolina**. There are 13 licensed shark dealers in South Carolina operating in 8 locations. There are 8 directed shark permits and 10 incidental shark permits held by fishermen in South Carolina.

- **Georgia**. There is 1 licensed shark dealer in Georgia operating in 1 location. There are 2 directed shark permits and 2 incidental shark permits held by fishermen in Georgia. The state of Georgia prohibits landing shark taken by gill net (O.C.G.A. § 27-4-7).

- **Florida**. There are 29 licensed shark dealers in Florida operating in 25 locations. On the Atlantic side of the state there are 17 dealers operating in 16 locations. There are 126 directed shark permits and 135 incidental shark permits held by fishermen in Florida.

Effects of Management Actions on Fishing Dependent Communities

The following information regarding Amendment 2 and 3 was acquired from the 2011 Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species[55]. Based on 2005 and 2006 stock assessments, NMFS further revised shark management measures and rebuilding periods in Amendment 2 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan on June 24, 2008 (73 FR 35778; corrected on July 15, 2008, 73 FR 40658). In the final rule, NMFS removed sandbar sharks from the LCS complex and established a non-sandbar LCS complex that was split into two regions (Atlantic and Gulf of Mexico). Amendment 2 also implemented new annual adjusted quotas for sandbar sharks, non-sandbar LCS, and a porbeagle shark commercial quota. Amendment 2 also required that all sharks be landed with all fins attached to the carcass through landing and offloading.

Stock assessments results from 2007 for blacknose and shortfin mako sharks required NMFS to publish Amendment 3 to the Consolidated HMS FMP (75 FR 30484; June 1, 2010). This amendment created a species specific quota for blacknose sharks, modified the quota for the non-blacknose SCS, added smooth dogfish to the management unit and established a quota, and would take action at the international level through international fishery management organizations to establish management measures to end overfishing of shortfin mako sharks.

Passerotti *et al.* 2011 further summarized the effects of Amendment 2[56]: Since the implementation of Amendment 2, the directed LCS gillnet fishery has been greatly reduced. The 33-head LCS trip limit has essentially ended the strike net fishery and limited the number of fishers targeting LCS with drift gillnet gear. The SCS fishery was also limited by Amendment 2, but was more directly impacted by Amendment 3 which significantly reduced the SCS quota and established an individual quota for blacknose sharks. As a result, many gillnet fishers that historically targeted sharks are now targeting teleost species with varying types of gillnet gear.

[55] Consolidated Atlantic Highly Migratory Species Fisheries Management Plan. Amendment 1. Available at: http://www.nmfs.noaa.gov/sfa/hms/EFH/Final/FEIS_Amendment_Total.pdf. Accessed on 27 Sept 2012.
[56] Passerotti, M.S., J.K. Carlson, and S.J.B. Gulak. 2011. Catch and Bycatch in U.S. Southeast Gillnet Fisheries, 2010. NOAA Technical Memorandum NMFS-SEFSC-612. 16 p

The following information regarding Amendment 5 was acquired from the 2011 Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species[57]. Recently, NMFS updated the stock status determinations for blacknose, sandbar, and dusky sharks (76 FR 62331; October 7, 2011). The blacknose shark stock was split into two regions with the Atlantic stock being determined as overfished with overfishing occurring, and the Gulf of Mexico stock status was determined to be unknown. The status of sandbar sharks was determined to be overfished with no overfishing occurring, which is a change from the previous determination of overfished with overfishing occurring. The status of dusky sharks is unchanged and remains overfished with overfishing occurring. NMFS also determined that the status of the scalloped hammerhead shark stock is overfished with overfishing occurring (76 FR 23794; April 28, 2011). As a result of these stock assessments, NMFS is currently developing Amendment 5 to the Consolidated Atlantic Highly Migratory Species Fishery Management Plan.

9.4.5.6 Coastal Migratory Pelagic Species

The Coastal Migratory Pelagic (CMP) Species Fishery (managing Spanish mackerel, King mackerel, and cobia) is based primarily in waters off the southeastern United States. Landings in the South Atlantic portion of the CMP fishery for 2011 were approximately 7.5 million pounds.[58] According to a recent status report, neither king mackerel, Spanish mackerel, nor cobia was classified as overfished or experiencing overfishing[59]. In 2005, NMFS adopted Amendment 15 to the FMP for CMP Resources. The amendment defined a limited access system and made permanent what had previously been a temporary moratorium on king mackerel permits. Amendment 18 further established annual catch limits, annual catch targets, and accountability measures for king mackerel, Spanish mackerel, and cobia.

Fishing Communities

The South Atlantic portion of the CMP fishery extends from North Carolina to Florida. To assess the importance of coastal migratory pelagic species in these areas, Exhibit 9-24 notes the contribution of coastal migratory pelagic species to total landings in each state. As the exhibit shows, the majority of landings for the fishery are from Florida. Fishing community analyses from the recent Amendment 18 from CMP FMP reveal the following[60]. The top two fishing communities for Spanish and king mackerel were Cocoa and Ft. Pierce, Florida. Hatteras, North Carolina has the third most landings for Spanish and king mackerel within the South Atlantic region. For cobia, the top three fishing communities, in terms of landings, were Cocoa, Mayport, and Jupiter, Florida.

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[57] Consolidated Atlantic Highly Migratory Species Fisheries Management Plan. Amendment 1. Available at: http://www.nmfs.noaa.gov/sfa/hms/EFH/Final/FEIS_Amendment_Total.pdf. Accessed on 27 Sept 2012.

[58] Source: Annual Commercial Landings Statistics**.** Accessed Sept. 19, 2012; Available at http://www.st.nmfs.noaa.gov/pls/webpls/FT_HELP.SPECIES)

[59] SAFMC South Atlantic Snapper Grouper Amendment 18A. Accessed Sept 19, 2012; Available at http://www.safmc.net/LinkClick.aspx?fileticket=kS1mDi2YAZw%3d&tabid=415

[60] SAFMC. Coastal Migratory Pelagic Resources Amendment 18. Accessed Sept 20, 2012; Available at http://www.safmc.net/LinkClick.aspx?fileticket=NQLgkVLqK4k%3d&tabid=387

Exhibit 9-24

2011 Commercial Landings by Pounds and Value				
State	**Coastal Migratory Pelagics* Landings (lbs)**	**Coastal Migratory Pelagics* Landings (dollars)**	**All Species Landings (lbs)**	**All Species Landings (dollars)**
North Carolina	1,299,337	$2,285,124	67,480,815	$71,171,882
Florida (East Coast)	6,219,006	$8,664,177	31,245,100	$60,673,426
Georgia	Data not available		12,646,360	$16,295,007
South Carolina	18,239	$51,051	13,559,035	$28,284,297

Source: Annual Commercial Landings Statistics**.** Accessed Sept. 19, 2012; Available at http://www.st.nmfs.noaa.gov/pls/webpls/FT_HELP.SPECIES)

* Although cero is no longer managed under the CMP FMP, king mackerel and cero mackerel landings data are reported combined, thus cero are included in CMP landings.

Effects of Management Actions on Fishing Dependent Communities

King and Spanish mackerel are major commercial species in Florida and North Carolina. Since the mid-1980s, the fishing communities associated with the coastal migratory pelagic fishery have been subject to a series of management actions designed to reduce fishing mortality and rebuild overfished king and Spanish mackerel stocks. Implemented management actions have included total allow catch quotas (TACs), trip limits, fish size limits, and gear restrictions. These management measures have succeeded in rebuilding the Atlantic migratory groups of king and Spanish mackerel into stocks no longer considered to be overfished or undergoing overfishing. The most recent major management action in January 2012 established annual catch limits (ACL), annual catch targets (ACT), and accountability measures (AMs) for king and Spanish mackerel and cobia.

Atlantic king mackerel:

ACL: 10.46 million pounds (6.58 million pounds recreational, 3.88 million pounds commercial)

ACT: No ACT for the commercial sector; 6.11 million pounds for the recreational sector

AMs: Close the commercial sector when the commercial ACL (quota) is reached; reduce the bag limit or season length the following year if the recreational ACL (quota) is reached. Only make bag limit or season length adjustments if the total ACL is exceeded. If a sector-specific ACL is exceeded, reduce the sector-specific ACL the following year by the amount of the overage, only if the stock is overfished and if the total ACL is exceeded.

Atlantic Spanish mackerel:

ACL: 5.69 million pounds (2.56 million pounds recreational, 3.13 million pounds commercial)

ACT: No ACT for the commercial sector, 6.11 million pounds for the recreational sector

AMs: Close the commercial sector when the commercial ACL (quota) is reached; reduce the bag limit or season length the following year if the recreational ACL (quota) is reached. Only make bag limit or season length adjustments if the total ACL is exceeded. If a sector-specific ACL is exceeded, reduce the sector-specific ACL the following year by

the amount of the overage, only if the stock is overfished and if the total ACL is exceeded.

Atlantic cobia:
ACL: 1,571,399 pounds (1,445,687 pounds recreational, 125,712 pounds commercial)
ACT: No ACT for the commercial sector, 1,184,688 pounds for the recreational sector
AMs: Close the commercial sector when the commercial ACL (quota) is reached; reduce the bag limit or season length the following year if the recreational ACL (quota) is reached. Only make bag limit or season length adjustments if the total ACL is exceeded. If a sector-specific ACL is exceeded, reduce the sector-specific ACL the following year by the amount of the overage, only if the stock is overfished and if the total ACL is exceeded.

These actions are expected to result in positive economic and social impacts for South Atlantic mackerel fishermen.

9.4.5.7 Black Sea Bass

9.4.5.7.1 Northern Fishery

The northern portion of the black sea bass fishery extends from Cape Hatteras to the U.S./Canada border. The stock has been considered rebuilt since 2009 (ASFMC 2010).

Fishing Communities

According to NMFS weigh out landings data, in 1999, black sea bass was landed in 99 ports from Maine to North Carolina. In order to assess the importance of black sea bass to fishing dependent communities, NMFS considered the proportion or contribution of black sea bass to total revenue from all landings (fishing revenue dependence) in each port. Black sea bass accounted for less than five percent of total revenues at 84 of the 99 ports reporting black sea bass landings. Black sea bass accounted for five to ten percent of revenues at six ports and greater than ten percent of revenues at nine ports (MAFMC and ASMFC, 2002). Since 1998 landings have ranged from 2.86 to 3.53 million pounds with a decrease in landings in 2009 from 2008 of a total of 1.4 million pounds (ASMFC 2010).

Effects of Management Actions on Fishing Dependent Communities

The first major management action for the Black Sea Bass fishery was implemented in 1998 under Amendment 9 to the Summer Flounder, Scup, and Black Sea Bass FMP. Amendment 9 established a quarterly commercial quota for the fishery, a necessary action to advance the recovery of the black sea bass stock. The Final Environmental Impact Statement (FEIS) for this action reviewed 1999 landing statistics to determine the reliance of key ports on black sea bass landings. Based on this information, the FEIS concluded that black sea bass landings were not of critical importance to the commercial fishing industry in the key ports identified.

Since the implementation of this action, however, significant social and economic impacts have resulted from Amendment 9. Although the quarterly quota system was designed to allow for landings in each of the four periods, early fishery closures occurred in the second, third, and fourth quarters of 1999 and 2000. In 2001, the black sea bass fishery was only open for approximately two months during a six-month period between July and December. The unintended result of the quarterly quota system has been a series of long closures associated with significant social and economic consequences for fishing communities. For example:

- Reduced or inconsistent streams of income can cause significant financial hardships for fishermen dependent on the black sea bass fishery;
- Fluctuating supply can result in decreased market demand;
- Short open periods for the fishery can result in "derby-style" fishing that promotes unsafe fishing practices (e.g., fishermen will fish in unsafe weather in order to catch "their share" of the quota); and
- Derby-style fishing practices may also favor larger, more mobile vessels that may be able to land more fish at the beginning of each period than smaller, less mobile vessels.

In addition, inter-regional inequities may have been created as a result of the coastwide quota system, with landings shifted to the north. For example, in the last quarter of 2000, Massachusetts accounted for 41 percent of black sea bass landings (MAFMC and ASFMC, 2002). A shift in abundance of black sea bass to the north could account for this concentration of landings; however, some fishermen have also indicated that the restrictive possession limits favored fishing operations in the north, where black sea bass are caught closer to shore.

To address the negative impacts of Amendment 9, the NEFMC initiated development of Amendment 13. Amendment 13, approved March 4, 2003, implemented a state-by-state allocation system of the annual commercial quota. This system allows for a more equitable distribution of the commercial quota without the additional burden of Federal monitoring by NMFS. In this system, states are allowed to design allocation programs based on possession limits and seasons that ensure a continuous and steady supply of fish throughout the year and/or establish a fair and equitable distribution of black sea bass to all fishermen who have traditionally landed black sea bass in their state. The FEIS concluded that this system is likely to eliminate derby-style fishing and reduce the likelihood of seasonal closures. Amendment 13 is expected to have overall positive economic and social impacts to black sea bass fishing communities.

The FMP has been amended multiple times since Amendment 13. Each of these actions have been administrative in nature or have affected the recreational fishery.

9.4.5.7.2 Southern Fishery

The southern portion of the black sea bass fishery extends from Cape Hatteras, NC to Cape Canaveral, FL, but the majority of the pot fishery is concentrated off North Carolina and northern South Carolina (Exhibit 9-25). The southern stock of black sea bass is no longer undergoing overfishing[61] (fishing mortality if above threshold). The fishery is no longer overfished (biomass below threshold and is rebuilt[62].

Exhibit 9-25

2011 Commercial Landings by Pounds and Value				
State	**Black Sea Bass Landings (lbs)**	**Black Sea Bass Landings (dollars**	**All Species Landings (lbs)**	**All Species Landings (dollars)**
North Carolina	272,189	$627,744	67,480,815	$71,171,882
Florida (East Coast)	134,616	$164,077	31,245,100	$60,673,426
Georgia	Data not available		12,646,360	$16,295,007
South Carolina	176,039	$296,698	13,559,035	$28,284,297

Source: Annual Commercial Landings Statistics**.** Accessed Sept. 19, 2012; Available at http://www.st.nmfs.noaa.gov/pls/webpls/FT_HELP.SPECIES)

Fishing Communities[63]

From 2008-2010, black sea bass was landed in at least 15 counties from North Carolina to Florida. In North Carolina, black sea bass are the second most targeted snapper grouper species after vermilion snapper. From 2008-2010, in North Carolina, black sea bass pot gear landings were the highest in Onslow County, particularly from vessels with the home port of the community of Sneads Ferry. Pender County had the next highest landings during this time period, and most of these were from the communities of Hampstead and Topsail Beach.

In South Carolina, from 2008-2010, cumulative black sea bass pot gear landings were greatest in Horry County, with most landings in the community of Little River. Georgetown County has the next highest pot gear landings of black sea bass and most landings are associated with the communities of Georgetown and Murrell's Inlet. In Charleston County (the third highest landings of black sea bass), most landings are reported from the community of McClellanville.

61

National Marine Fisheries Service - 3rd Quarter 2013 Update Table A. Summary of Stock Status for FSSI Stocks http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries/archive/2013/third/stock__status_tables_cy_q3_2013.pdf

[62] National Marine Fisheries Service--2011 Status of U.S. Fisheries. Accessed on Sept 19, 2012; Available at http://www.nmfs.noaa.gov/sfa/statusoffisheries/2011/RTC/2011_RTC_FSSI_nonFSSI_TabA_D.pdf

[63] SAFMC South Atlantic Snapper Grouper Amendment 18A. Accessed Sept 19, 2012; Available at http://www.safmc.net/LinkClick.aspx?fileticket=kS1mDi2YAZw%3d&tabid=415

Only one community in Georgia, Townsend, lands a substantial amount of snapper grouper species but in general black sea bass is not a significant part of the commercial harvest.

Commercial harvest of black sea bass has historically not been as prominent in Florida as in North Carolina and South Carolina, but Florida fishermen report that there is more interest in the fishery in recent years. Monroe County has the highest pot gear landings for black sea bass in Florida, followed by Miami-Dade County and Volusia County. It should be noted that while these landings are associated with the home ports, the vessels may fish in other areas or states.

Effects of Management Actions on Fishing Dependent Communities

During the past eight years, the black sea bass pot fishery in the South Atlantic has undergone significant changes as a result of regulatory attempts to control black sea bass harvest and prevent protected species interactions. The black sea bass pot segment of the snapper-grouper fishery is required to adhere to all regulations stipulated in the ALWTRP[64]. Provisions that have been implemented for the snapper grouper fishery as a whole affect the black sea bass component of the fishery in addition to any black sea bass-specific provisions. The following information reflects all provisions directly applicable to black sea bass harvest (includes all gear types).

Amendment 13C to the Fishery Management Plan (FMP) for the Snapper-Grouper Fishery of the South Atlantic Region[65] implemented actions to phase out overfishing of black sea bass. Amendment 13C specified a commercial quota of 477,000 pounds gutted weight (563,000 pounds whole weight) in year 1 (2006); 423,000 pounds gutted weight (499,000 pounds whole weight) in year 2; and 309,000 pounds gutted weight (364,000 pounds whole weight) in year 3 onwards until modified. After the commercial quota is met, all purchase and sale is prohibited and harvest and/or possession is limited to the bag limit. Amendment 13C also required the use of at least 2" mesh for the entire back panel of black sea bass pots, and changed the fishing year from the calendar year to June 1 through May 31. Additionally, Amendment 13C required that black sea bass pots be removed from the water when the quota is met. According to the final environmental impact statement (FEIS) for Amendment 13C the overall expected economic impact from these measures would result in short-term losses in net revenue that would increase by an average of $0.07 million, $0.19 million, and $0.28 million during years 1, 2, and 3.

Amendment 17B to the FMP[66] established annual catch limits (ACLs) and accountability measures (AMs) for species undergoing overfishing, including black sea bass. Amendment 17B set the commercial ACL for black sea bass at 309,000 pounds gutted weight, and the recreational black sea bass ACL at 409,000 pounds gutted weight consistent with the management measures and rebuilding plan established for black sea bass in Amendments 13C and 15A to the FMP. The commercial sector AM for black sea bass remained the same and prohibited sale of the species and limited harvest to the bag limit when the ACL is met or projected to be met. The

[64] Specifics of the ATWTRP regulations as they apply to South Atlantic black sea bass are contained in **Appendix D** of the whale take reduction website: http://www.nero.noaa.gov/whaletrp/.
[65] SAFMC South Atlantic Snapper Grouper Amendment 13C. Available at http://www.safmc.net/Portals/6/Library/FMP/SnapGroup/SG%20Amend%2013C%202-23-06%20FINAL.pdf
[66] SAFMC South Atlantic Snapper Grouper Amendment 17B. Available at http://www.safmc.net/LinkClick.aspx?fileticket=9BXhV2vGiyM%3d&tabid=415

recreational AM was applied to black grouper, black sea bass, gag, red grouper, and vermilion snapper, and the recreational ACL was compared to the recreational landings over a range of 3 years. If at least one of the species is overfished and the sector ACL is projected to be met, harvest and retention of the species or species group was prohibited. If the recreational ACL was exceeded, independent of stock status, the Regional Administrator would publish a notice to reduce the recreational sector ACL in the following season by the amount of the overage. No overall economic impacts were expected as a result of establishing the commercial and recreational ACLs for black sea bass since they did not change the previously established commercial quota and recreational allocation. The expected economic impacts of the changes in AMs on the recreational sector could not be quantified and, as a result, were not provided in the FEIS; however, the qualitative analysis of the expected economic effects concluded that averaging of harvests over a range of years would allow consideration of both short-term and long-term economic effects, and the ACL payback provisions would provide better protection to overfished stocks, thereby improving the likelihood of protecting the long-term economic benefits of the resource to affected communities.

Regulatory Amendment 9 to the FMP[67] reduced the black sea bass recreational bag limit from 15 fish per person per day to 5 fish per person per day in an effort to reduce the rate of recreational harvest and prolong the recreational fishing season. The 5-fish recreational bag limit was expected to reduce headboat harvest by 14%, charter harvest by 20%, and private mode harvest by 5% but, by reducing harvest, the open season for black sea bass was expected to be extended. Extending the black sea bass recreation open season was projected to result in an increase in for-hire vessel profits of from approximately $45,000 to $164,000.

Amendment 18A to the FMP[68] modified the recreational and commercial AMs implemented in Amendment 17B by removing the use of the three year running average for the recreational sector and allowing the recreational sector to be closed when the ACL is met or projected to be met regardless of the stock status. For the commercial sector, Amendment 18A modified the commercial AM established in Amendment 17B to include a payback provision if the commercial ACL is exceeded. Amendment 18A also established an endorsement program for the black sea bass pot segment of the snapper-grouper fishery, established a 1,000 pound gutted weight trip limit for black sea bass, modified the current recreational and commercial minimum size limits for black sea bass, limited the number of black sea bass pots that can be fished on a trip, and required all black sea bass pots to be brought back to shore at the end of every trip. Given the variety of factors that affect fisheries, persistent data issues, and the complexity of trying to identify cause-and-effect relationships, it is not possible to differentiate actual or cumulative regulatory effects from external cause-induced effects. In general, it can be stated that the increasingly complex and burdensome regulatory environment for all fisheries, in addition to other adverse influences, has increased the likelihood of economic losses, business failure, occupational changes, and associated adverse pressures on associated families, communities, and industries. Some reversal of this trend is possible and expected. The establishment of an endorsement program for black sea bass and modification to the rebuilding strategy is expected to result in long-term positive impacts on the fishery and associated fishing

[67] SAFMC South Atlantic Snapper Grouper Regulatory Amendment 9. Available at http://www.safmc.net/LinkClick.aspx?fileticket=EtCxdBHfs2M%3d&tabid=415

[68] SAFMC South Atlantic Snapper Grouper Amendment 18A. Available at http://www.safmc.net/LinkClick.aspx?fileticket=kS1mDi2YAZw%3d&tabid=415

communities. By limiting the number of participants and effort in the fishery and increasing allowable harvest as the stock rebuilds, overcapitalization may be avoided and derby conditions may diminish.

Regulatory Amendment 19 specified the ABC and revised the OY, the commercial and recreational ACLs, and the recreational ACT. Also, this amendment established an annual prohibition on the use of black sea bass trap/pots in the South Atlantic from November 1 through April 30. The increases to the annual catch limit for black sea bass in South Atlantic waters is likely to have primarily positive social and economic effects. The increased ACL is expected to lengthen the commercial and recreational seasons for black sea bass. It would be expected that commercial and recreational fishermen may be able to keep more black sea bass that might be discarded otherwise, and increased commerce for for-hire fishers and associated businesses would be expected to improve. An increase in the ACL for black sea bass can provide opportunities for commercial and recreational fishermen if access to another target species becomes limited through regulatory or environmental changes[69].

Some negative social and economic effects could result from the proposed changes in the black sea bass ACL. If the ACL is increased but derby fishing continues (which shortens the season and contributes to an increase in regulatory discards), then the perceived social benefits would not accrue and could be negative in contrast. An increase in the ACL of this popular fish may also result in an effort shift from other fisheries and this could reduce the likelihood of the expected lengthened seasons by continuing the derby conditions.

Additionally, a longer commercial season for black sea bass will coincide with right whale calving season. If the commercial ACL is not met before November 1, the pot sector of the commercial black sea bass fishery would forfeit some of the economic benefits of the extended season.

9.4.5.8 Red Crab

Since the early 1970s there has been a small directed red crab fishery off the New England and Mid-Atlantic coasts. Though the size and intensity of this fishery has fluctuated since its origin, it has remained consistently small relative to more prominent New England fisheries such as groundfish, sea scallops, and lobster. Throughout the 1980s, landings averaged approximately 5.5 million pounds per year. In the mid-1990s, landings increased substantially, peaking in 2001 at 8.8 million pounds. In recent years landings have decreased to less than 3 million pounds in 2007 and 2008.

Fishing Communities

[69] http://www.safmc.net/sites/default/files/meetings/pdf/Public%20Hearings%20&%20Scoping/Nov%202013%20-%20webinars/sa_reg_am19_appen.pdf

The directed commercial fishery for deep-sea red crab has relatively few participants. Since the implementation of the FMP 4 vessels have harvested the total landings for the fishery. Six ports were identified as the primary ports of vessel operations and mooring: Fall River, Gloucester, and New Bedford, Massachusetts; Bristol, Maine; Portsmouth, Rhode Island; and Tiverton, Rhode Island.

The type of service industries used by the red crab fishery include: fuel, ice, food and groceries, bait, gear, oil/lubrication, water, hull maintenance, engine maintenance, electronics, insurance, accounting, legal advice, and dockage. The fishery-related service industries in the New Bedford, Massachusetts, area provide more support to the red crab fishery than all other locations combined. Due to the small size of the fishery and the small number of fishing vessels involved, however, it is unlikely that providing these services to red crab vessels accounts for more than a very minor component of any service industry's overall fishery-related revenue.

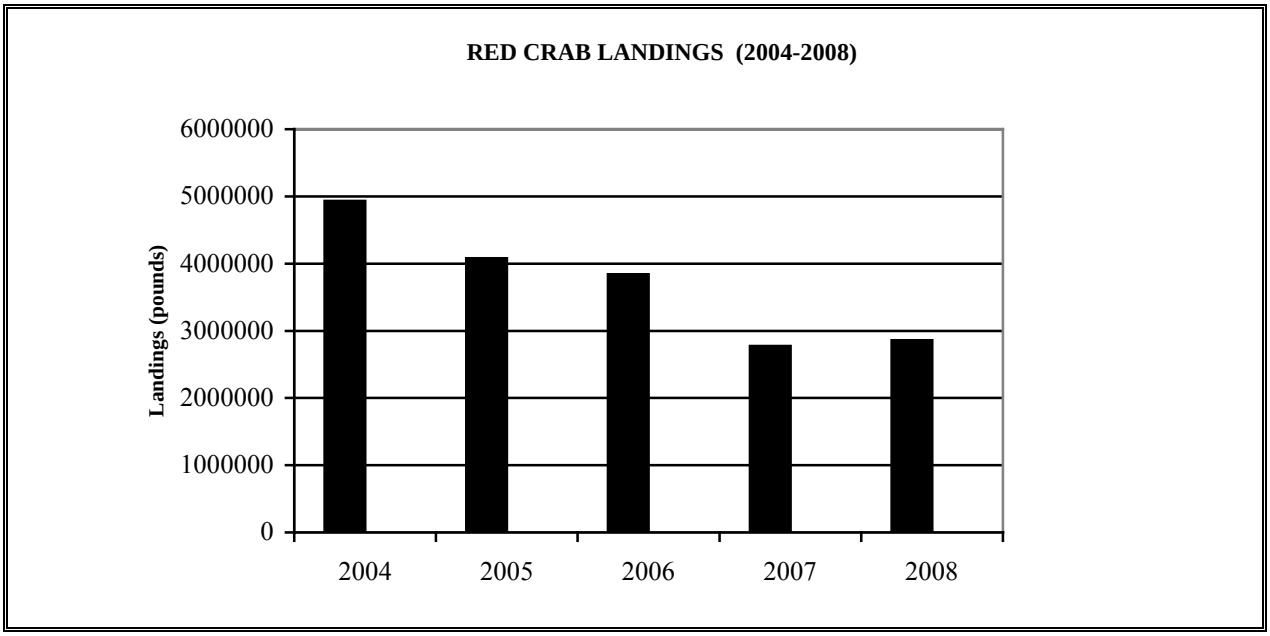
All vessels fish out of New Bedford, MA due to the new crab processing plan that was established in August 2009. The vessels in the fishery believe that red crab could not have withstood the level of fishing effort occurring prior to the FMP implementation (NEFMC 2011b).

Effects of Management Actions on Fishing Dependent Communities

The most recent management action affecting the red crab fishery is the Red Crab FMP, which became effective on October 21, 2002. The FMP establishes a target total allowable catch (TAC) for the red crab fishery. The TAC is set through an annual specification process at a level equal to the most current estimate of Optimum Yield (OY) for the fishery. Along with the annual target TAC, the annual specification process involves calculation of the total DAS that may be utilized by the directed fishery, based on the average catch per DAS from the previous year. Total DAS are allocated equally to all vessels issued a limited access red crab permit.

The EIS for the FMP determined that a target TAC to manage the directed red crab fishery could result in adverse social impacts on current participants. First, the TAC may have to be set significantly lower than current landings. This would in turn reduce revenues, with a potential reduction in occupational opportunities for some fishermen, and a general decrease in flexibility and stability associated with this fishery, in turn increasing the uncertainty felt by the participants.

Exhibit 9-26



Second, without other complementary controls, the simple establishment of an overall TAC for the fishery could create a derby-type fishery, where the participants fish much more intensively and more frequently than they would under other conditions, in an attempt to harvest as much crab as they can before the TAC is reached and the fishery is closed down. Depending on the number of participants in the fishery and the level of the TAC, this "race to fish" could result in significant decreases in flexibility and stability in the fishery, as well as significant increases in the uncertainty associated with the fishery and the availability of the resource. In order to reduce the potential for the creation of a derby-style fishery, the Red Crab FMP first calculates total DAS based on the TAC level and the average catch per DAS from the previous year, and allocates the total DAS equally to all vessels in the fishery.

The 2009 Emergency Action that reduced the target TAC and DAS allocations by 40% for the vessels involved in the red crab fishery did not directly impact the participants in the fishery because landings in the most recent years have been below the level specified in the Emergency Action.

The recent Amendment 3 implemented in September 2011 replaced with the TAC and DAS program with a TAL program that provides increased flexibility to the fleet. Trip limits were also eliminated. These changes are expected to result in positive impacts to the fishery.

9.4.5.9 Scup

Commercial scup landings have declined substantially since peaking in the 1960s. In 1989, commercial landings decreased to 8.2 million pounds, the lowest value recorded during the ten-year period from 1983 to 1992, and only about 17 percent of the 49 million pounds landed in 1960. Since 1996, commercial landings have decreased substantially to between three and five million pounds annually, a reflection of low stock abundance and Federal management of the fishery through annual harvest quotas beginning in 1997. The scup resource index improved following implementation of the harvest quotas, resulting in an increase in total allowable catch (from 9.1 million pounds in 1997 to 12.92 million pounds in 2002) and removal of the scup resource from the list of fisheries designated as overfished. In recent years, however, the scup resource index has declined. As of 2005, the scup resource was again considered overfished (ASMFC, 2005). As of 2011, overfishing was not occurring and the stock is considered rebuilt (ASMFC 2010).

Fishing Communities

Scup are landed all along the Atlantic coast from Maine to Florida. However, the majority of the harvest is landed in Rhode Island, New Jersey, New York, and Massachusetts. Exhibit 9-27 shows landings per state from 2000-2009.

Exhibit 9-27

COMMERCIAL LANDINGS OF SCUP BY STATE FROM 2000-2009[1]

State	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Maine			469		2					
Massachusetts	355,403	462,124	727,183	897,168	775,940	1,134,759	1,088,148	1,104,316	527,725	718,751
Rhode Island	1,016,959	1,617,373	3,674,789	3,813,811	3,425,242	3,423,611	3,642,943	3,932,503	2,151,504	3,618,687
Connecticut	142,415	220,319	313,827	292,346	255,569	327,861	297,921	255,884	283,101	147,146
New York	633,712	655,203	1,557,601	1,849,957	1,906,889	2,185,836	2,423,179	2,324,887	1,213,776	1,847,769
New Jersey	510,769	1,055,954	923,084	2,306,257	1,891,086	1,914,358	1,392,868	1,575,144	773,829	
Delaware					2					
Maryland	109				47,200	927				11,127
Virginia	1,091	53,503	54,298	557,694	448,574	287,891	80,292		96,194	
North Carolina	615	665	7,657	143,004	523,554	352,422	140,062	66,979	205,868	244,337
Coastwide	2,661,073	4,065,141	7,258,908	9,860,237	9,274,058	9,627,665	9,065,404	9,259,713	5,251,997	6,587,817

Notes: In thousands of pounds
Source: ASFMC 2010

Effects of Management Actions on Fishing Dependent Communities

The seven-year rebuilding schedule identified in the Scup FMP was expected to reduce exploitation of scup and restore the stock. The FMP also specifies minimum size requirements and commercial gear restrictions, including minimum mesh size, maximum roller diameter, and pot and trap degradable fastener and escape vent provisions. The FEIS for this rule indicated that gross revenues may be reduced by more than five percent for some small entity participants, or that operating costs may increase by more than five percent for some small entity participants who have to purchase new gear. It is unlikely, however, that more than 20 percent of affected small entities (otter trawl vessels) in this fishery would be required to make these purchases. Additionally, harvesters must replace codends and rollers as a routine cost of doing business, so not all costs can be attributed to the FMP gear requirements. As a result, NMFS concluded that this rule would not impact a substantial number of small entities (61 FR 43420).

The FEIS presents data demonstrating that the participants in the scup fishery rely on a number of other species as well, including squid, summer flounder, Atlantic mackerel, and silver hake. When compared to the other species, scup is a relatively low-value species for participants in this mixed species fishery. In addition, scup landings in the states of Rhode Island, New Jersey and New York represented only 2.0 percent, 2.3 percent, and 2.1 percent, respectively, of the total commercial value of all other species landed (61 FR 43420).

The FMP has been amended numerous times with the most recently with Amendment XX in November 2009. This amendment implemented policies that would reconcile quota overages. This is expected to have positive effects on the fishery.

9.4.5.10 Summary of Factors Affecting Fishing Dependent Communities

Exhibit 9-28 summarizes the number of active or permitted vessels, the past, present, and reasonably foreseeable future actions, and the overall effect of those actions on the major fishing dependent communities affected by the ALWTRP regulatory alternatives.

Exhibit 9-28

SUMMARY OF FACTORS AFFECTING FISHING DEPENDENT COMMUNITIES

Fishery	Number of Active/ Permitted Vessels[1]	Major Past, Present, and Reasonably Foreseeable Future (PPRFFA) Actions	Effect of PPRFFAs
American Lobster	2,800 permitted	• Amendment 3 • Addenda I through VIII trap reductions • Potential restrictions under sea turtle strategy • Amendment 15-18	Slightly Negative
Northeast Multispecies	204 permitted	• See 9.4.3.2 for history of management actions • Amendment 13 • Emergency Interim Final Rule • Framework 24 • Amendment 16	Highly Negative
Monkfish	479 permitted	• Monkfish FMP DAS reductions • Amendment 6 (under development)	Negative
Spiny Dogfish	584 permitted	• Spiny Dogfish FMP DAS reductions • Amendment 3 (under development)	Negative
Shark	Not available	• Amendment 1 harvest quotas	Negative
Coastal Migratory Pelagic	Not available	• See 9.4.3.6 for history of management actions • Amendment 12 harvest quotas	Negative
Northern Black Sea Bass	182 active	• Amendment 9 harvest quotas • Amendment 13 harvest quotas • HPTRP area restrictions • Potential restrictions under sea turtle strategy	Slightly Negative
Southern Black Sea Bass	32 active	• Amendment 9 increases in minimum size; gear modifications • Amendment 13C measures to reduce southern black sea bass fishing effort • Potential restrictions under sea turtle strategy	Slightly Negative
Hagfish	Not available	• Hagfish FMP in development.	Not applicable
Red Crab	852 permitted	• Red Crab FMP harvest quota • Amendment 3	Slightly Negative
Scup	114 permitted	• Amendment 8 harvest quota • Restrictions for the Atlantic scup gillnet fishery under HPTRP • Potential restrictions under sea turtle strategy	Slightly Negative
Jonah Crab	Not available	• Not a federally managed fishery at this time.	Not applicable
Conch/Whelk	Not available	• Not a federally managed fishery at this time.	Not applicable

Notes:

[1] The number of vessels reported here reflects the number of active vessels or, when this information is unavailable, the number of federally permitted vessels. The number of permitted vessels reported includes only those that identify gear that is currently or potentially subject to the requirements of the ALWTRP as their primary gear (2002). Fisheries marked N.A. include those for which data on the number of active or permitted vessels are not available (Jonah crab) and those for which information on gear use is not available (shark and coastal migratory pelagic species).

9.5 CONSEQUENCES OF THE ALTERNATIVES CONSIDERED

The following sections summarize the direct and indirect impacts on each VEC of the regulatory alternatives evaluated in this FEIS.

9.5.1 Atlantic Large Whales

A complete analysis of the direct and indirect impacts of the regulatory alternatives considered can be found in Chapter 5.

9.5.2 Other Protected Species

A complete analysis of the direct and indirect impacts of the regulatory alternatives considered can be found in Chapter 5.

9.5.3 Affected Fisheries

A complete analysis of the direct and indirect impacts of the regulatory alternatives considered can be found in Chapter 6.

9.5.4 Habitat

A complete analysis of the direct and indirect impacts of the regulatory alternatives considered can be found in Chapter 5.

9.5.5 Fishing Dependent and Human Communities

A complete analysis of the direct and indirect impacts of the regulatory alternatives considered can be found in Chapter 7.

9.6 CUMULATIVE EFFECTS OF THE ALTERNATIVES CONSIDERED

The following tables (Exhibits 9-29 through 9-33) summarize the cumulative effects of each alternative considered in this FEIS on each VEC in relation to the past, present, and reasonably foreseeable future actions. Cumulative impacts are assessed using the following terms:

- "Positive effect" means that the cumulative effects of an alternative are expected to improve the status of the resource relative to its current status under past, present, and reasonably foreseeable future actions.

- "Negative effect" means that the cumulative effects of an alternative are expected to adversely affect the status of the resource relative to its current status under past, present, and reasonably foreseeable future actions.

- "Neutral effect" means that the cumulative effects of an alternative are expected to be no different than they had been under past, present, and reasonably foreseeable future actions.

- "None identified" means that no cumulative effect is foreseen, but one might exist in the future.

The exhibits suggest the following cumulative impacts:

- **Large Whales**: Past and present actions (e.g., whaling bans) have reversed the rapid decline of key whale species. The ALWTRP modifications considered here would reduce the risk of serious injury or mortality due to entanglement without exacerbating the risk associated with any of the remaining stressors. Therefore, all regulatory alternatives, excluding the no action alternative, are expected to have an overall positive cumulative effect on large whale survival. Exhibit 9-29 presents a more detailed analysis by alternative.

- **Other Protected Species**: The ALWTRP modifications considered here would complement existing and forthcoming actions to reduce takes of other protected species. Hence, the cumulative effect of all regulatory alternatives, excluding the no action alternative, is expected to be slightly positive to positive. Exhibit 9-30 presents a more detailed analysis by alternative.

- **Habitat**: The ALWTRP modifications considered here are likely to have no significant, long-term impact on habitat. However, the potential action could contribute to increased contact between fishing gear in some regions (i.e., additional groundline and anchors) and the ocean floor, and could result in adverse impacts on habitat in exempted areas where fishing pressure may intensify. Therefore, the cumulative effects of Alternatives 2-6 (Draft and Preferred) are expected to be slightly negative. Exhibit 9-31 presents a more detailed analysis by alternative.

- **Affected Fisheries**: The potential modifications to the ALWTRP are likely to have no significant, long-term impact on affected fishery resources (e.g., the American lobster resource, groundfish resources, etc.). Therefore, no cumulative effects are identified for any of the regulatory alternatives (Exhibit 9-32).

- **Fishing Dependent and Human Communities**: The cumulative impacts for fishing dependent communities are a function of current and forthcoming management actions, as well as the incremental impacts of modifications to the ALWTRP. While the regulatory changes specified under Alternatives 2 and 3 would be unlikely to have significant economic or social impacts, the regulatory changes specified under Alternatives 4, 5, and 6 (Draft and Preferred) would likely have more significant effects due to the proposed seasonal closures. The greatest socioeconomic pressure would likely be felt by those in the lobster trap/pot fishery, particularly those who operate small lobster vessels; compliance costs for these fishermen are likely to represent a greater share of total revenues than would be the case for most others. Although, all fisheries would have to abide by the new gear marking requirements proposed under all alternatives so there would be a minimal economic burden felt by all fisheries. The economic burden associated with these alternatives would be felt by small-boat lobstermen and their families in numerous communities, particularly in Maine, and could force some individuals to leave the industry. Exhibit 9-33 presents a more detailed analysis by alternative for the lobster trap/pot fishery, the other trap/pot fishery, and the gillnet fishery. The No Action Alternative would not have a conservation benefit and whale watching industry would suffer from a lack of protection of large whales. Alternatively, the whale watching industry would experience a positive economic gain and whale watching could become more profitable as the ALWTRP continues to protect and restore large whale populations through Alternatives 2-6 (Draft and Preferred).

Exhibit 9-29

VALUED ECOSYSTEM COMPONENT: ATLANTIC LARGE WHALES

Alternative	Direct and Indirect Impacts	Past and Present Actions, Including Other Federal and Non-Federal Actions	Reasonably Foreseeable Future Actions (RFFAs), Including Other Federal and Non-Federal Actions	Cumulative Effects Associated with ALWTRP Modifications
Alternative 1 (No Action)	See section 5.1	• **ALWTRP Rule**: The ALWTRP implemented gear modifications for the lobster trap/pot and gillnet fisheries to reduce incidental entanglement of Atlantic large whales in fishing gear. The initial rule went into effect in 1997; since then it has been updated in February 1999, December 2000, January 2002, June 2007, October 2007, and September 2008. This rule has resulted in positive effects from the implementation of low-risk gear modifications and seasonal closures where there is significant interaction between whales and lobster trap/pot and gillnet activity. • **Fishery Management Actions**: Positive effects have also resulted from the implementation of various management actions for fisheries that interact with Atlantic large whales. Reductions in entanglement risk have indirectly resulted from measures such as effort reductions; closures; and days-at-sea and trip limitations. • **Other Actions**: Whaling bans, water quality regulations.	• **Fishery Management Actions**: Same as past and present actions. • **Other Potential Actions**: Management efforts to reduce incidental takes of right whales from ship strikes.	**Significant negative cumulative effect.** Alternative 1 would not modify the ALWTRP to reduce the risk of entanglement to large whales. This would likely result in additional losses of individuals from endangered populations.
Alternative 2	See section 5.1			**Significant positive cumulative effects.** Alternative 2 would implement broad-based gear setting and marking requirements on a year-round basis in all areas subject to the ALWTRP. These requirements are designed to reduce whale entanglement risks.
Alternative 3	See section 5.1			**Positive, but not significant cumulative effects.** Alternative 3 would implement broad-based gear setting and marking requirements on a year-round basis in all areas subject to the ALWTRP. These requirements are designed to reduce whale entanglement risks. This alternative would reduce entanglement risks, but is not as risk averse as Alternative 2. There would be slight negative effects under this alternative because of the small area of additional exempted waters proposed under Alternative 3.
Alternative 4	See section 5.1			**Significant positive cumulative effects.** Alternative 4 would implement broad-based gear setting and marking requirements on a year-round basis in all areas subject to the ALWTRP. Alternative 4 also implements 3 seasonal closures. These requirements are designed to reduce whale entanglement risks.
Alternative 5	See section 5.1			**Significant positive cumulative effects.** Alternative 5 would implement broad-based gear setting and marking requirements on a year-round basis in all areas subject to the ALWTRP. Alternative 5 also implements 3 seasonal closures. These requirements are designed to reduce whale entanglement risks. The benefits of Alternative 5 are lower than Alternative s 4 or 2 due to the proposal of a small area of additional exempted waters.
Alternative 6 (Draft)	See section 5.1			**Significant positive cumulative effects.** Alternative 6 (Draft) would implement broad-based gear setting and marking requirements on a year-round basis in all areas subject to the ALWTRP. Alternative 6 (Draft) also implements 1 seasonal closure. These requirements are designed to reduce whale entanglement risks. The benefits of Alternative 6(Draft) are lower than Alternatives 4, 2, or 5 due to the proposal of a small area of additional exempted waters and one seasonal closures as opposed to three.
Alternative 6 (Preferred)	See section 5.1			**Significant positive cumulative effects.** Alternative 6(Preferred) would implement broad-based gear setting and marking requirements on a year-round basis in most areas subject to the ALWTRP. Alternative 6 (Preferred) also implements 1 seasonal closure. These requirements are designed to reduce whale entanglement risks. The benefits of Alternative 6(Preferred) are lower than Alternatives 4, 2, or 5 due to the proposal of a small area of additional exempted waters and one seasonal closures as opposed to three

Exhibit 9-30

VALUED ECOSYSTEM COMPONENT: OTHER PROTECTED SPECIES

Alternative	Direct and Indirect Impacts	Past and Present Actions, Including Other Federal and Non-Federal Actions	Reasonably Foreseeable Future Actions (RFFAs), Including Other Federal and Non-Federal Actions	Cumulative Effects Associated with ALWTRP Modifications
Alternative 1 (No Action)	See section 5.2.1	• **AOCTRT**: Positive effects from the reduction of entanglement risks implemented through the HMS FMP. • **ALWTRP Rules**: The ALWTRP has implemented gear modifications for the lobster trap/pot and gillnet fisheries to reduce incidental entanglement of specific Atlantic large whales in fishing gear; this rule also provides the same benefits to other large whale species whose ranges overlap the ALWTRP area. • **HPTRP**: Positive effects from the implementation of area restrictions on gillnet activity from the Gulf of Maine to the Mid-Atlantic region. • **Turtle Excluder Devices**: Positive effects from the reduction of entanglement risk from shrimp trawling operations. • **VA Pound Net Rule**: This rule enacted seasonal area and gear restrictions designed to reduce the entanglement of sea turtles in the state fishery. • **Fishery Management Actions**: Positive effects have also resulted from the implementation of various management actions for fisheries that interact with protected species. Reductions in entanglement risk have indirectly resulted from measures such as time/area closures and effort reductions (e.g., days-at-sea allocations, trip limits), and from recent hook, bait, and sea turtle release gear requirements for pelagic longline fisheries. • **BDTRP**: Positive effects from the gillnet effort reduction, gear proximity requirements, and gear or gear deployment modifications in the Mid- and South Atlantic regions.	• **Atlantic Trawl and Pelagic Longline Take Reduction Teams**: These take reduction teams will address the incidental take of marine mammals and other protected species in these fisheries. • **Sea Turtle Strategy**: Released by NMFS in June 2001, the plan will address the incidental capture of endangered or threatened sea turtle species in state and Federal fisheries in the Atlantic and Gulf of Mexico. • **Fishery Management Actions**: Same as past and present actions.	**Neutral cumulative effects.**
Alternative 2	See section 5.2.1			**Positive cumulative effects.** Alternative 2 would implement broad-based gear setting and marking requirements on a year-round basis in all areas subject to the ALWTRP. These requirements are designed to reduce whale entanglement risks and would provide ancillary reductions to other protected species.
Alternative 3	See section 5.2.1			**Positive cumulative effects.** Alternative 3 would implement broad-based gear setting and marking requirements on a year-round basis in all areas subject to the ALWTRP. These requirements are designed to reduce whale entanglement risks. This alternative would reduce entanglement risks, but is not as risk averse as Alternative 2. There would be slight negative effects under this alternative because of the small area of additional exempted waters proposed under Alternative 3. This alternative would provide ancillary reductions in entanglements to other protected species.
Alternative 4	See section 5.2.1			**Positive cumulative effects.** Alternative 4 would implement broad-based gear setting and marking requirements on a year-round basis in all areas subject to the ALWTRP. Alternative 4 also implements 3 seasonal closures. These requirements are designed to reduce whale entanglement risks and would provide ancillary reductions to other protected species.
Alternative 5	See section 5.2.1			**Positive cumulative effects.** Alternative 5 would implement broad-based gear setting and marking requirements on a year-round basis in all areas subject to the ALWTRP. Alternative 5 also implements 3 seasonal closures. These requirements are designed to reduce whale entanglement risks. The benefits of Alternative 5 are lower than Alternatives 4 or 2 due to the proposal of a small area of additional exempted waters. This alternative would provide ancillary reductions in entanglements to other protected species.
Alternative 6 (Draft)	See section 5.2.1			**Positive cumulative effects.** Alternative 6(Draft) would implement broad-based gear setting and marking requirements on a year-round basis in all areas subject to the ALWTRP. Alternative 6 (Draft)also implements 1 seasonal closure. These requirements are designed to reduce whale entanglement risks. The benefits of Alternative 6(Draft) are lower than Alternatives 4, 2, or 5due to the proposal of a small area of additional exempted waters and one seasonal closures as opposed to three. This alternative would provide ancillary reductions in entanglements to other protected species.
Alternative 6 (Preferred)	See section 5.2.1			**Positive cumulative effects.** Alternative 6(Preferred) would implement broad-based gear setting and marking requirements on a year-round basis in most areas subject to the ALWTRP. Alternative 6 also implements 1 seasonal closure. These requirements are designed to reduce whale entanglement risks. The benefits of Alternative 6(Preferred) are lower than Alternatives 4, 2, or 5due to the proposal of a small area of additional exempted waters and one seasonal closures as opposed to three. This alternative would provide reductions in entanglements to other protected species.

Exhibit 9-31

VALUED ECOSYSTEM COMPONENT: HABITAT

Alternative	Direct and Indirect Impacts	Past and Present Actions, Including Other Federal and Non-Federal Actions	Reasonably Foreseeable Future Actions (RFFAs), Including Other Federal and Non-Federal Actions	Cumulative Effects Associated with ALWTRP Modifications
Alternative 1 (No Action)	See section 5.2.2	• **External Management Actions**: – Clean Water Act; – CZMA of 1972; – MPRSA of 1972; – OPA of 1990; and – International laws regarding marine pollution. • **Internal Management Actions**: Determinations or regulations that have been enacted by NMFS or the Councils that clearly benefit EFH, such as essential fish habitat designations; area closures; gear and crew restrictions/alterations; permitting restrictions; and effort reductions (e.g., days-at-sea allocations, trip limits).	• **EFH Review**: The NEFMC and the SAFMC will be periodically reviewing and revising the EFH component of all FMPs under their authority. • **Internal Management Actions**: Same as past and present actions.	**Neutral cumulative effect**.
Alternative 2	See section 5.2.2			**Slightly negative cumulative effects.** Negative effects are anticipated as a result of increased contact between fishing gear (i.e., groundline and anchors) and the ocean floor, but these effects are expected to be minimal. There is a potential for the increase in groundline due to the increase in longer trawls. This alternative would have no impact on the continuing negative effect of other fishing and non-fishing activities.
Alternative 3	See section 5.2.2			**Slightly negative cumulative effects.** Negative effects are anticipated as a result of increased contact between fishing gear (i.e., groundline and anchors) and the ocean floor, but these effects are expected to be minimal. In addition, a potential increase in fishing pressure in new exempted areas could have an adverse impact on the benthic environment there. There is a potential for the increase in groundline due to the increase in longer trawls. This alternative would have no impact on the continuing negative effect of other fishing and non-fishing activities.
Alternative 4	See section 5.2.2			**Slightly negative cumulative effects.** Negative effects are anticipated as a result of increased contact between fishing gear (i.e., groundline and anchors) and the ocean floor, but these effects are expected to be minimal. There is a potential for the increase in groundline due to the increase in longer trawls. This alternative would have slight positive effects to habitat due to the proposed closure areas which would eliminate fishing pressure in three areas. This alternative would have no impact on the continuing negative effect of other fishing and non-fishing activities.
Alternative 5	See section 5.2.2			**Slightly negative cumulative effects.** Negative effects are anticipated as a result of increased contact between fishing gear (i.e., groundline and anchors) and the ocean floor, but these effects are expected to be minimal. In addition, a potential increase in fishing pressure in new exempted areas could have an adverse impact on the benthic environment there. There is a potential for the increase in groundline due to the increase in longer trawls. This alternative would have no impact on the continuing negative effect of other fishing and non-fishing activities. This alternative would have slight positive effects to habitat due to the proposed closure areas which would eliminate fishing pressure in three areas.
Alternative 6 (Draft)	See section 5.2.2			**Slightly negative cumulative effects.** Negative effects are anticipated as a result of increased contact between fishing gear (i.e., groundline and anchors) and the ocean floor, but these effects are expected to be minimal. In addition, a potential increase in fishing pressure in new exempted areas could have an adverse impact on the benthic environment there. There is a potential for the increase in groundline due to the increase in longer trawls. This alternative would have no impact on the continuing negative effect of other fishing and non-fishing activities. This alternative would have slight positive effects to habitat due to the proposed closure area which would eliminate fishing pressure in one area.
Alternative 6 (Preferred)	See section 5.2.2			**Slightly negative cumulative effects.** Negative effects are anticipated as a result of increased contact between fishing gear (i.e., groundline and anchors) and the ocean floor, but these effects are expected to be minimal. In addition, a potential increase in fishing pressure in new exempted areas could have an adverse impact on the benthic environment there. There is a potential for the increase in groundline due to the increase in longer trawls. This alternative would have no impact on the continuing negative effect of other fishing and non-fishing activities. This alternative would have slight positive effects to habitat due to the proposed closure area which would eliminate fishing pressure in one area.

Exhibit 9-32

VALUED ECOSYSTEM COMPONENT: FISHERY RESOURCES

Alternative	Direct and Indirect Impacts	Past and Present Actions, Including Other Federal and Non-Federal Actions	Reasonably Foreseeable Future Actions (RFFAs), Including Other Federal and Non-Federal Actions	Cumulative Effects Associated with ALWTRP Modifications
Lobster Trap/Pot Fishery				
Alternative 1 (No Action)	See section 5.2.3	• **Fishery Management Actions:** Significant recent actions include Amendment 3, trap reductions for all LMAs under Addendum I, effort reductions in LMA 2 under Addendum IV, and a trap cap in LMA 3 under Addendum V. These actions are designed to improve fishery resource stocks. • **ALWTRP**: Gear restrictions and area closures under the current ALWTRP.	• **Sea Turtle Strategy**: Lobster trap/pot fishery could be subject to regulations under this plan. • **Fishery Management Actions**: Additional fishery management measures may be necessary to ensure that fishery resources are not designated as "overfished" and "overfishing" is not occurring under the SFA.	Neutral cumulative effect
Alternative 2	See section 5.2.3			None identified
Alternative 3	See section 5.2.3			None identified
Alternative 4	See section 5.2.3			None identified
Alternative 5	See section 5.2.3			None identified
Alternative 6 (Draft)	See section 5.2.3			None identified
Alternative 6 (Preferred)	See section 5.2.3			None identified
Gillnet Fisheries				
Alternative 1 (No Action)	See section 5.2.3	• **Fishery Management Actions**: Measures implemented under FMPs, including DAS reductions for the Northeast multispecies, monkfish, and spiny dogfish fisheries, and harvest quotas for the shark and coastal migratory pelagic species fisheries. These actions are designed to improve fishery resource stocks. • **HPTRP**: Area restrictions under the HPTRP apply to the following fisheries: Northeast multispecies, monkfish, and spiny dogfish. • **ALWTRP**: Gear restrictions and area closures under the current ALWTRP, including the Northeast anchored float gillnet and the Northeast driftnet fisheries. • **BDTRP**: Fisheries subject to regulations under this plan include Mid-Atlantic, Southeast Atlantic and Southeastern U.S. Atlantic shark gillnet fisheries.	• **Sea Turtle Strategy**: Fisheries that could be subject to regulations under this plan include Northeast multispecies, monkfish, and spiny dogfish. • **Fishery Management Actions**: Additional fishery management measures may be necessary to ensure that fishery resources are not designated as "overfished" and "overfishing" is not occurring under the SFA.	Neutral cumulative effect
Alternative 2	See section 5.2.3			None identified
Alternative 3	See section 5.2.3			None identified
Alternative 4	See section 5.2.3			None identified
Alternative 5	See section 5.2.3			None identified
Alternative 6 (Draft)	See section 5.2.3			None identified
Alternative 6 (Preferred)	See section 5.2.3			None identified
Other Trap/Pot Fisheries				
Alternative 1 (No Action)	See section 5.2.3	• **Fishery Management Actions**: Measures implemented under FMPs, including harvest quotas for black sea bass, scup, and red crab. These actions are designed to improve fishery resource stocks. • **ALWTRP**: Gear restrictions and area closures under the current ALWTRP	• **Sea Turtle Strategy**: Fisheries that could be subject to regulations under this plan include black sea bass. • **Fishery Management Actions**: Additional fishery management measures may be necessary to ensure that fishery resources are not designated as "overfished" and "overfishing" is not occurring under the SFA. • **FMPs**: An increase in fishing pressure on the following fisheries, not currently regulated under the SFA, could result in Federal regulation: hagfish, Jonah crab, and conch/whelk.	Neutral cumulative effect
Alternative 2	See section 5.2.3			None identified
Alternative 3	See section 5.2.3			None identified
Alternative 4	See section 5.2.3			None identified
Alternative 5	See section 5.2.3			None identified
Alternative 6 (Draft)	See section 5.2.3			None identified
Alternative 6 (Preferred)	See section 5.2.3			None identified

Exhibit 9-33

VALUED ECOSYSTEM COMPONENT: FISHING DEPENDENT AND HUMAN COMMUNITIES

Alternative	Direct and Indirect Impacts	Past and Present Actions, Including Other Federal and Non-Federal Actions	Reasonably Foreseeable Future Actions (RFFAs), Including Other Federal and Non-Federal Actions	Cumulative Effects Associated with ALWTRP Modifications
Lobster Trap/Pot Fishery				
Alternative 1 (No Action)	No change.	• **Fishery Management Actions**: Significant recent actions include Amendment 3, trap reductions for all LMAs under Addendum I, effort reductions in LMA 2 under Addendum IV, and a trap cap in LMA 3 under Addendum V. These actions are designed to improve fishery resource stocks and have resulted in slightly negative economic and social impacts on regulated lobster fishermen and communities. Independent vessels in LMA 2 and 6 may be particularly vulnerable to increased regulatory costs as a result of the mass mortality of lobster in LIS (1999). Amendment XV plans to cap effort via the implementation of a limited entry program. • **ALWTRP**: Gear restrictions and area closures under the current ALWTRP. Resulted in slightly negative economic and social impacts on vessels fishing in Restricted Areas. • **Buyback Programs**: Groundline buyback programs reduced ALWTRP impacts on vessel owners and fishing communities.	• **Sea Turtle Strategy**: Lobster trap/pot fishery could be subject to regulations under this plan. • **Fishery Management Actions**: Additional fishery management measures may be necessary to ensure that fishery resources are not designated as "overfished" and "overfishing" is not occurring under the SFA.	**Neutral cumulative effect.**
Alternative 2	See Section 5.2.4			**Slightly negative cumulative effects**. The burden on smaller vessels could potentially increase with the requirement to increase traps per trawl. All vessels would have to increase gear marking and this may create a small increase in cost per vessel.
Alternative 3	See Section 5.2.4			**Slightly negative cumulative effects.** The burden on smaller vessels could potentially increase with the requirement to increase traps per trawl. All vessels would have to increase gear marking and this may create a small increase in cost per vessel.
Alternative 4	See Section 5.2.4			**Negative cumulative effects.** Alternatives 4,5, 6(Draft) are anticipated to have a higher economic impact than the other alternatives because of the proposed closures. Alternative 6 includes one closure as opposed to the three proposed under 4 and 5 so the economic and social impact would be less under Alternative 6. All vessels would have to increase gear marking and this may create a small increase in cost per vessel.
Alternative 5	See Section 5.2.4			
Alternative 6 (Draft)	See Section 5.2.4			
Alternative 6 (Preferred)	See Section 5.2.4			**Slightly negative cumulative effects.** Alternative 6 (Preferred) includes one closure as opposed to the three proposed under 4 and 5 so the economic and social impact would be less under Alternative 6(Preferred). All vessels would have to increase gear marking and this may create a small increase in cost per vessel. However this Alternative exempts some areas (and creates buffers around islands)from the minimum number of traps per trawl so the economic burden on smaller vessels may not be as high as with other alternatives.

Exhibit 9-33

VALUED ECOSYSTEM COMPONENT: FISHING DEPENDENT AND HUMAN COMMUNITIES

Alternative	Direct and Indirect Impacts	Past and Present Actions, Including Other Federal and Non-Federal Actions	Reasonably Foreseeable Future Actions (RFFAs), Including Other Federal and Non-Federal Actions	Cumulative Effects Associated with ALWTRP Modifications
Gillnet Fisheries				
Alternative 1 (No Action)	No change.	• **Fishery Management Actions**: Measures implemented under FMPs, including DAS reductions for the Northeast multispecies, monkfish, and spiny dogfish fisheries, and harvest quotas for the shark and coastal migratory pelagic species fisheries. These actions are designed to improve fishery resource stocks. • **HPTRP**: Area restrictions under the HPTRP apply to the following fisheries: Northeast multispecies, monkfish, and spiny dogfish. • **ALWTRP**: Gear restrictions and area closures under the current ALWTRP, including the Northeast anchored float gillnet and the Northeast driftnet fisheries. • **BDTRP**: Fisheries subject to regulations under this plan include Mid-Atlantic, Southeast Atlantic and Southeastern U.S. Atlantic shark gillnet fisheries.	• **Sea Turtle Strategy**: Fisheries that could be subject to regulations under this plan include Northeast multispecies, monkfish, and spiny dogfish. • **Fishery Management Actions**: Additional fishery management measures may be necessary to ensure that fishery resources are not designated as "overfished" and "overfishing" is not occurring under the SFA.	**Neutral cumulative effect.**
Alternative 2	No heavily affected vessels identified.			**Neutral to slightly negative cumulative effects.** All vessels would have to increase gear marking and this may create a small increase in cost per vessel.
Alternative 3				**Neutral to slightly negative cumulative effects.** All vessels would have to increase gear marking and this may create a small increase in cost per vessel.
Alternative 4				**Slightly negative cumulative effects.** All vessels would have to increase gear marking and this may create a small increase in cost per vessel. All of the gillnet fisheries are subject to numerous regulations that have resulted in highly adverse impacts for the Northeast multispecies fishery, as well as adverse impacts for the monkfish, spiny dogfish, shark, and coastal migratory pelagic species fisheries. Therefore, the cumulative effects are expected to be slightly negative for some portions of the gillnet fishery and neutral in others.
Alternative 5	No heavily affected vessels identified.			**Slightly negative cumulative effects.** All vessels would have to increase gear marking and this may create a small increase in cost per vessel. All of the gillnet fisheries are subject to numerous regulations that have resulted in highly adverse impacts for the Northeast multispecies fishery, as well as adverse impacts for the monkfish, spiny dogfish, shark, and coastal migratory pelagic species fisheries. Therefore, the cumulative effects are expected to be slightly negative for some portions of the gillnet fishery and neutral in others.
Alternative 6 (Draft)	No heavily affected vessels identified.			**Slightly negative cumulative effects.**. All vessels would have to increase gear marking and this may create a small increase in cost per vessel. All of the gillnet fisheries are subject to numerous regulations that have resulted in highly adverse impacts for the Northeast multispecies fishery, as well as adverse impacts for the monkfish, spiny dogfish, shark, and coastal migratory pelagic species fisheries. Therefore, the cumulative effects are expected to be slightly negative for some portions of the gillnet fishery and neutral in others.
Alternative 6 (Preferred)	No heavily affected vessels identified.			**Slightly negative cumulative effects.**. All vessels would have to increase gear marking and this may create a small increase in cost per vessel. All of the gillnet fisheries are subject to numerous regulations that have resulted in highly adverse impacts for the Northeast multispecies fishery, as well as adverse impacts for the monkfish, spiny dogfish, shark, and coastal migratory pelagic species fisheries. Therefore, the cumulative effects are expected to be slightly negative for some portions of the gillnet fishery and neutral in others.

Exhibit 9-33

VALUED ECOSYSTEM COMPONENT: FISHING DEPENDENT AND HUMAN COMMUNITIES

Alternative	Direct and Indirect Impacts	Past and Present Actions, Including Other Federal and Non-Federal Actions	Reasonably Foreseeable Future Actions (RFFAs), Including Other Federal and Non-Federal Actions	Cumulative Effects Associated with ALWTRP Modifications
Other Trap/Pot Fisheries				
Alternative 1 (No Action)	No change.	• **Fishery Management Actions**: Measures implemented under FMPs, including harvest quotas for black sea bass, scup, and red crab. These actions are designed to improve fishery resource stocks and have resulted in slightly negative economic and social impacts on regulated fishermen and communities. • **HPTRP**: Area restrictions under the HPTRP for the northern black sea bass fishery. • **ALWTRP**: Gear restrictions and area closures under the current ALWTRP for the red crab fishery.	• **Sea Turtle Strategy:** Fisheries that could be subject to regulations under this plan include black sea bass. • **Fishery Management Actions**: Additional fishery management measures may be necessary to ensure that fishery resources are not designated as "overfished" and "overfishing" is not occurring under the SFA. • **FMPs**: An increase in fishing pressure on the following fisheries, not currently regulated under SFA, could result in Federal regulation: hagfish, Jonah crab, and conch/whelk.	**Neutral cumulative effect**.
Alternative 2	See Section 5.2.4			**Slightly negative cumulative effects** . The burden on smaller vessels could potentially increase with the requirement to increase traps per trawl. All vessels would have to increase gear marking and this may create a small increase in cost per vessel.
Alternative 3	See Section 5.2.4			**Slightly negative cumulative effects** . The burden on smaller vessels could potentially increase with the requirement to increase traps per trawl. All vessels would have to increase gear marking and this may create a small increase in cost per vessel.
Alternative 4	See Section 5.2.4			**Negative cumulative effects.** These alternatives (4,5, 6(Draft)) are anticipated to have a higher economic impact than the other alternatives because of the proposed closures. Alternative 6 (Draft) includes one closure as opposed to the three proposed under 4 and 5 so the economic and social impact would be less under Alternative 6. All vessels would have to increase gear marking and this may create a small increase in cost per vessel.
Alternative 5	See Section 5.2.4			
Alternative 6 (Draft)	See Section 5.2.4			
Alternative 6 (Preferred)	See Section 5.2.4			**Slightly negative cumulative effects.** This alternative is anticipated to have a higher economic impact than the other alternatives because of the proposed closures. Alternative 6 (Preferred) includes one closure as opposed to the three proposed under 4 and 5 so the economic and social impact would be less under Alternative 6. All vessels would have to increase gear marking and this may create a small increase in cost per vessel. . However this Alternative exempts some areas (and creates buffers around islands)from the minimum number of traps per trawl so the economic burden on smaller vessels may not be as high as with other alternatives.

Exhibit 9-33

VALUED ECOSYSTEM COMPONENT: FISHING DEPENDENT AND HUMAN COMMUNITIES

Alternative	Direct and Indirect Impacts	Past and Present Actions, Including Other Federal and Non-Federal Actions	Reasonably Foreseeable Future Actions (RFFAs), Including Other Federal and Non-Federal Actions	Cumulative Effects Associated with ALWTRP Modifications
Whale Watching and Other Passive Uses				
Alternative 1 (No Action)	No change.	• **ALWTRP**: Gear restrictions and area closures under the current ALWTRP. Resulted in slightly negative economic and social impacts on vessels fishing in Restricted Areas.	• **Sea Turtle Strategy**: Lobster trap/pot fishery could be subject to regulations under this plan. • **Fishery Management Actions**: Additional fishery management measures may be necessary to ensure that fishery resources are not designated as "overfished" and "overfishing" is not occurring under the SFA.	**Negative effect.** This alternative would not have a conservation benefit and whale watching industry would suffer from a lack of protection of large whales
Alternative 2	See Chapter 7			**Positive effect.** The whale watching industry would experience a positive economic gain and whale watching could become more profitable as the ALWTRP continues to protect and restore large whale populations.
Alternative 3				
Alternative 4				
Alternative 5				
Alternative 6 (Draft)				
Alternative 6 (Preferred)				

Exhibit 9-34 provides a more concise summary of the cumulative effects of each alternative on the five VECs: Atlantic large whales, other protected species, habitat, fishery resources, and fishing dependent communities. Cumulative effects are assessed using the same terms described above: positive effect, negative effect, neutral effect, and none identified.

The exhibit suggests the following cumulative effects expected across all VECs for each alternative under consideration:

- **Alternative 1 (No Action):** The No Action alternative is not expected to affect four out of the five VECs being considered here, as this alternative would not alter the current state of the ALWTRP. While the fishing industry at first may experience some level of positive impacts because new regulations would not be implemented, these effects would be neutralized over time. The lack of action at this point could result in future actions that may result in negative impacts to the industry. Negative effects would be expected on large whales in light of the continued risk of entanglements. These negative effects may translate into negative effects to the whale watching industry.

- **Alternative 2:** Large whales and other protected species are expected to benefit, as this alternative would implement additional gear marking and setting requirements year-round. Habitat may experience a slight (but minimal) negative effect due to the increased contact of gear with the seafloor, as well as the potential for increased amounts of fishing in exempted waters. No potential effects have been identified on fishery resources. Fishing dependent communities are expected to experience negative to slightly negative effects.

- **Alternative 3:** The potential cumulative effects of this alternative would be similar to those associated with Alternative 2. The implementation of this alternative is expected to benefit large whales by implementing additional gear marking and setting requirements year-round. Other protected species are expected to experience ancillary benefits, as well. There may be slightly negative (but minimal) effects on habitat due to the increased contact of gear with the seafloor, as well as the potential for increased amounts of fishing in exempted waters. No potential effects are expected on fishery resources, and negative to slightly negative effects are expected on fishing dependent communities.

- **Alternative 4:** The effects of implementing Alternative 4 would be similar to those associated with Alternatives 2. Alternative 4 would implement additional gear marking and setting requirements year-round. Alternative 4 would also implement three seasonal closures; thus, Alternative 4 would provide slightly greater benefits to large whales than Alternative 2 or 3. Fishery resources and fishing dependent communities would experience slightly negative to negative effects.

- **Alternative 5:** The implementation of this alternative would result in a combination of Alternatives 2, 3, and 4. Fishery resources and fishing dependent communities would experience slightly negative to negative effects.

- **Alternative 6 (Draft):** The effects of implementing Alternative 6 would be similar to those associated with Alternative 5. Alternative 6 would implement closures in fewer areas than Alternative 5. Other protected species may receive ancillary benefits from these measures.

Habitat would experience slightly negative (but minimal) effects resulting from an increase in gear contacting the seafloor, as well as the potential for increased amounts of fishing in exempted waters. Fishery resources and fishing dependent communities would experience slightly negative to negative effects but to a lesser extent than Alternative 4 or 5.

- **Alternative 6 (Preferred):** The implementation of the preferred alternative would be similar to Alternative 6 (Draft). However, fishery resources and fishing dependent communities would experience slightly negative to negative effects to a lesser extent than under Alternative 6 (Draft).

Exhibit 9-34

SUMMARY OF CUMULATIVE EFFECTS ACROSS ALL VECs FOR EACH ALTERNATIVE

Alternative	Atlantic Large Whales	Other Protected Species	Habitat	Fishery Resources	Human Communities
Alternative 1 (No Action)	Negative effects	Neutral effects	Neutral effects	**Lobster Trap/Pot Fishery:** Neutral effects **Gillnet Fisheries:** Neutral effects **Other Trap/Pot Fisheries:** Neutral effects	**Lobster Trap/Pot Fishery:** Neutral effects **Gillnet Fisheries:** Neutral effects **Other Trap/Pot Fisheries:** Neutral effects **Conservation/Passive Uses:** Negative effects
Alternative 2	Positive effects	Positive effects	Slightly negative effects	**Lobster Trap/Pot Fishery:** No effects identified **Gillnet Fisheries:** No effects identified **Other Trap/Pot Fisheries:** No effects identified	**Lobster Trap/Pot Fishery:** Negative effects **Gillnet Fisheries:** Neutral to slightly negative effects **Other Trap/Pot Fisheries:** Negative effects **Conservation/Passive Uses:** Positive effects
Alternative 3	Positive effects	Positive effects	Slightly negative effects	**Lobster Trap/Pot Fishery:** No effects identified **Gillnet Fisheries:** No effects identified **Other Trap/Pot Fisheries:** No effects identified	**Lobster Trap/Pot Fishery:** Negative effects **Gillnet Fisheries:** Neutral to slightly negative effects **Other Trap/Pot Fisheries:** Negative effects **Conservation/Passive Uses:** Positive effects
Alternative 4	Positive effects	Positive effects	Slightly negative effects	**Lobster Trap/Pot Fishery:** Negative effects **Gillnet Fisheries:** Negative effects **Other Trap/Pot Fisheries:** Negative effects	**Lobster Trap/Pot Fishery:** Negative effects **Gillnet Fisheries:** Negative effects **Other Trap/Pot Fisheries:** Negative effects **Conservation/Passive Uses:** Positive effects
Alternative 5	Positive effects	Slightly positive effects	Slightly negative effects	**Lobster Trap/Pot Fishery:** Negative effects **Gillnet Fisheries:** Negative effects **Other Trap/Pot Fisheries:** Negative effects	**Lobster Trap/Pot Fishery:** Negative effects **Gillnet Fisheries:** Negative effects **Other Trap/Pot Fisheries:** Negative effects **Conservation/Passive Uses:** Positive effects

Exhibit 9-34

SUMMARY OF CUMULATIVE EFFECTS ACROSS ALL VECs FOR EACH ALTERNATIVE

Alternative	Atlantic Large Whales	Other Protected Species	Habitat	Fishery Resources	Human Communities
Alternative 6 (Draft)	Positive effects	Positive effects	Slightly negative effects	**Lobster Trap/Pot Fishery:** Negative effects **Gillnet Fisheries:** Negative effects **Other Trap/Pot Fisheries:** Negative effects	**Lobster Trap/Pot Fishery:** Negative effects **Gillnet Fisheries:** Negative effects **Other Trap/Pot Fisheries:** Negative effects **Conservation/Passive Uses:** Positive effects
Alternative 6 (Preferred)	Positive effects	Positive effects	Slightly negative effects	**Lobster Trap/Pot Fishery:** Slightly negative effects **Gillnet Fisheries:** Negative effects **Other Trap/Pot Fisheries:** Negative effects	**Lobster Trap/Pot Fishery:** Slightly negative effects **Gillnet Fisheries:** Negative effects **Other Trap/Pot Fisheries:** Negative effects **Conservation/Passive Uses:** Positive effects

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Appendix 9-A

SUPPLEMENTARY INFORMATION FOR CUMULATIVE EFFECTS ANALYSIS

Exhibit 9A-1

SUMMARY OF COLLISIONS BETWEEN SHIPS AND WHALES: RIGHT WHALES, 1972 THROUGH 2009[2]

Date	Sex	Age	Outcome[1]	Location	Notes
January 1972		Calf	Mortality	Freeport, TX	severed tail
Winter 1972			Mortality	97 km E of Boston, MA	suspected right whale
April 1976	male	Calf	Mortality	Cape Cod, MA	large bruise
November 1976			Mortality	Portland, ME	large propeller cuts on back; possible ship collision
March 1979	male	Juvenile	Mortality	Long Island, NY	severed tail
May 1980	male		Non-fatal	Great South Channel, MA	deep cut along back, crossing spine
August 1980	male		Non-fatal	Bay of Fundy	series of 8 propeller cuts running along left flank and over back
February 1983	male	2 yrs.	Mortality	Island Beach, NJ	severed tail
August 1984			Non-fatal	Browns Bank	series of 5 propeller cuts
August 1986	female	1 yr.	Mortality	Massachusetts Bay	2 propeller cuts; severed spine
August 1986	female	5-7 yrs.	Presumed Dead	Bay of Fundy	
February 1987	female	Calf	Non-fatal	Southeast USA	series of five propeller cuts
July 1987	male	Juvenile	Mortality	Nova Scotia, Seaforth	several gashes in back
August 1987			Non-fatal	Browns Bank	fluke tip severed by propeller
February 1991	female	Calf	Non-fatal	Southeast USA	series of 3 propeller cuts
March 1991	female	2 yrs.	Mortality	Fernandina Beach, FL	fractured skull
July 1991		Calf	Mortality	East of Delaware Bay, DE	Coast Guard cutter (84 m) at 22 kn.
September 1992	female	Adult	Mortality	Bay of Fundy, Grand Manan Island	internal hemorrhaging
January 1993	male	Calf	Mortality	St. Augustine, FL	Coast Guard cutter (25 m) at 15 kn.; series of propeller slashes from dorsal peduncle to head, and lower left flank to throat
December 1993	female		Mortality	Offshore, VA	propeller gash on right side; probably ship strike
December 1993	male	12-22 m	Mortality	NC/VA border	scar on leading edge of fluke and right side mid-body
February 1994		Calf	Presumed Dead	Florida	probably propeller cuts on both sides of dorsal flukes; flukes not functional
April 1994			Mortality	Ocracoke, NC	axillary hemorrhage ventral to left pectoral and posterior third of mandible
August 1995	female	Adult	Presumed Dead	Gulf of Maine	deep cut on right side of head below rostrum and cutting into the lower lip
October 1995	male		Mortality	Bay of Fundy, Long Island, Nova Scotia	gash in back
January 1996	male	Adult	Mortality	Sapelo, GA	shattered skull, broken vertebrae and ribs
March 1996	male	Adult	Mortality	Cape Cod, MA	3 m gash on back, broken skull
August 1997	female		Mortality	Bay of Fundy	traumatic impact on left side and lower jaw
January 1998		1 year	Non-fatal	Georgia	entire left fluke lop severed by propeller
October 1998			Mortality	NC/VA state line	
April 1999	female	27 yrs.	Mortality	Wellfleet, MA	fractures to mandible and vertebral column, abrasion and edema around right flipper
March 2001	male	Calf	Mortality	Assateague, VA	large propeller gashes on dorsal caudal and acute muscular hemorrhage
June 2001	female	Calf	Mortality	Long Island, NY	dorsal propeller wounds, sub-dermal hemorrhage
August 2002	Female	1 yr	Mortality	Ocean City, MD	Large laceration on dorsal surface
October 2003	Female	Adult	Mortality	Digby, NS	Large fracture in skull, sub-dermal hemorrhage

Exhibit 9A-1

SUMMARY OF COLLISIONS BETWEEN SHIPS AND WHALES: RIGHT WHALES, 1972 THROUGH 2009[2]

Date	Sex	Age	Outcome[1]	Location	Notes
February 2004	Female	Adult	Mortality	Virginia Beach, VA	Severe subdermal bruising, complete fracture of rostrum and laceration of oral rete
November 2004	Female	Adult	Mortality	Ocean Sands, NC	Left fluke lobe severed and large bore blood vessels exposed
January 2005	Female	Adult	Mortality	Cumberland Island, GA	Healed propeller wounds from strike as calf re-opened as a result of pregnancy
March 2005			Serious Injury	Cumberland Island, GA	43' power yacht partially severed left fluke; resighted 9/4/05 in extremely poor condition
April 2005	Female	Adult	Mortality	Monomoy Island, MA	Significant bruising and multiple vertebral fractures
January 2006	Male	Calf	Mortality	Jacksonville, FL	Propeller lacerations associated with hemorrahaging and edema;flukes completely severed
March 2006	Male	Yearling	Serious Injury	Cumberland Island, GA	11 propeller lacerations across doral surface; not sighted since
July 2006	Female		Mortality	Campobello Island, NB	Propeller lacerations through blubber into muscle and ribs
August 2006	Female	Adult	Mortality	Roseway Basin, NB	16 fractured vertebrae; dorsal blubber bruise from head to gential region
December 2006	Male	Yearling	Mortality	Brunswick, GA	20 propeller lacerations along right side of head and back with associated hemorrhaging

Exhibit 9A-1

SUMMARY OF COLLISIONS BETWEEN SHIPS AND WHALES: HUMPBACK WHALES, 1990 THROUGH 2009[2]

Date	Sex	Length	Outcome[1]	Location	Notes
February 1990	female	11.1 m	Mortality	Nags Head, NC	broken mandible; head damage
June 1990			Unknown	Stellwagen Bank, MA	
June 1991			Minor	Stellwagen Bank, MA	whale-watching vessel (14 m)
November 1991	male	9.0 m	Mortality	Island Beach, NJ	fractured occipital condyle
February 1992	male	8.6 m	Mortality	Virginia Beach, VA	fractured mandible and eye socket; possible ship strike
March 1992	female	10.9 m	Mortality	Cape Hatteras, NC	propeller wounds on fluke
April 1992	female	8.9 m	Mortality	Assateague Island, MD	disarticulated skull, blunt trauma
April 1992	female	8.9 m	Mortality	Hatteras, NC	extensive skeletal damage
October 1992	female	8.7 m	Mortality	Metompkin Island, VA	bruising around axilla, dislocated mandible
October 1993			Severe	Atlantic City, NJ	private sport fishing vessel (10 m)
July 1994			Unknown	Stellwagen Bank, MA	
August 1994			Unknown	Gulf of Maine	
February 1995			Unknown	off NC	whale breached in front of submarine; slid down vessel's starboard; suspected right whale
August 1995	female	adult	Unknown	Gulf of Maine	cut 60-90 cm deep on right side of head
March 1996	male		Mortality	Wellfleet, MA	propeller cuts on back; skull broken
April 1996	female	7 m	Mortality	Virginia Beach, VA	fractured mandible
May 1996	female	7.3 m	Mortality	Cape Henlopen, DE	deep propeller cuts behind blowhole
November 1996	male	8.4 m	Mortality	Carrituck, NC	acute trauma to skull, blunt trauma to left lateral peduncle, fractured left squamosal
July 1997			Unknown	Cape Cod, MA	Coast Guard cutter (82 m)
September 1997			Minor	St. Lawrence Estuary, Canada	whale-watching vessel
December 1997	male	9.0 m	Mortality	Beaufort Inlet, NC	massive hemorrhaging consistent with forceful blunt trauma
June 1998			Unknown	Boston Harbor, MA	incident involved two whales
August 1998			Severe	Stellwagen Bank, MA	high-speed catamaran
May 2000			Unknown	Stellwagen Bank, MA	
July 2000			Unknown	Stellwagen Bank, MA	many focal hematomas on left side along ribs; but no broken bones
December 2000	male	8.5 m	Mortality	Cape Lookout, NJ	4 broken ribs; broken vertebral processes
January 2001		6.9 m	Mortality	Avon, NC	extensive hemorrhaging and clean cut through vertebrae
April 2001	male	7.9 m	Non-fatal	Myrtle Beach, SC	severe propeller wounds
July 2001	female	8.5 m	Mortality	NY	large laceration on left side of head, fractured skull
October 2001	female	11.4 m	Mortality	Duxbury Beach, MA	fractured skull, focal bruising indicative of pre-mortem ship strike
October 2001			Injury	Stellwagen Bank, MA	whale-watch vessel (11.7 knots)
February 2002	Female	8.4m	Mortality	Cape Henry, VA	3 large lacerations; hemorrhagimg; broken bones
August 2002	Male	9.3m	Mortality	Long Island, NY	Large hematoma posterior to blow holes
June 2003	Female	8.3m	Mortality	Chesapeake Bay mouth, VA	Major trauma to right side of head; hematoma
December 2004	Female	8.0m	Mortality	Bethany Beach, DE	Hematoma and skeletal fracturing
January 2006	Female	14.0m	Mortality	Off Charleston, SC	Extensive muscle hemorrhaging;rib fractures; dislocated flipper on left side of animal

Exhibit 9A-1

SUMMARY OF COLLISIONS BETWEEN SHIPS AND WHALES: HUMPBACK WHALES, 1990 THROUGH 2009[2]

Date	Sex	Length	Outcome[1]	Location	Notes
March 2006	Female	10m	Mortality	Virginia Beach, VA	Crushed cranium and fractured mandible;hemorrhaging associated with fractures; ventral lacerations consistent with propeller wounds
October 2006	Female	10.1m	Mortality	Off Fenwick Island, DE	Large laceration penetrating through the bone, across rostrum with accompanying fractures; no gear but marks around right flipper consistent with entanglement; subdermal hemorrhaging and bone trauma at the entanglement point
May 2007	Female	12.5m	Mortality	Off Wachapregue, VA	Cranium shattered;hemorrhaging on left lateral side midway between flippers and fluke
May 2007	Male	9.3m	Mortality	Rockport, MA	Areas of hemorrhaging indicate major blunt trauma to chest, neck, and head
June 2007	Female	9.9m	Mortality	Stellwagen Bank	Subdermal hemorrhaging involving blubber, fascia and muscle extending from/around the insertion of the right flipper ventrally to the axilla
November 2008	Male	10.1m	Mortality	Assateague Island, MD	Cranial fractures with associated hemorrhaging

Exhibit 9A-1

SUMMARY OF COLLISIONS BETWEEN SHIPS AND WHALES:
FIN WHALES, 1980 THROUGH 2009

Date	Sex	Length	Outcome[1]	Location	Notes
October 1979			Mortality	Baltimore, MD	
January 1980			Mortality	Portsmouth, VA	
February 1980			Mortality	Philadelphia, PA	
March 1981			Mortality	Atlantic City, NJ	brought into port on bow of ship
April 1982			Mortality	Portsmouth, VA	
June 1982			Mortality	Hog Island, VA	
August 1982			Mortality	Boston, MA	brought into port on bow of ship
January 1983			Mortality	Norfolk, VA	brought into port on bow of ship
January 1983			Mortality	Norfolk, VA	
July 1983			Mortality	Manhattan, NY	brought into port on bow of ship
October 1983			Mortality	Fire Island, NY	possible ship strike, slashes on left ventral side
March 1984			Mortality	Baltimore, MD	brought into port on bow of ship
August 1984			Injury	Stellwagen Bank, MA	whale-watch vessel (28 m)
July 1985			Unknown	Stellwagen Bank, MA	
August 1985			Mortality	Montauk, NY	possible ship strike, floating with propeller slashes
May 1986			Mortality	Hoboken, NJ	brought into port on bow of cruise ship
July 1986			Mortality	Delaware, NJ	reported struck by container ship
August 1987			Mortality	Boston, MA	brought into port on bow of ship
January 1988			Mortality	Marshfield, MA	possible ship strike
January 1988			Mortality	Cape Hatteras, NC	
May 1988			Mortality	Deal, NJ	
July 1989			Mortality	North Kingstown, RI	fractured lower jaw
November 1990	female	13.0 m	Mortality	Curtis Bay, MD	ship strike mark mid-lateral on left side
June 1992	female	15.6 m	Mortality	Long Beach Island, NJ	several fractured vertebrae
July 1992	male	17 m	Mortality	Port Newark, NJ	fractured vertebrae in midsection
August 1993		15 m	Mortality	Boston Harbor, MA	whale carried into harbor; likely ship strike
March 1994	female	16.0 m	Mortality	Virginia Beach, VA	flukes cut off
April 1994			Mortality	Penns Grove, NJ	broken vertebrae, blunt trauma to right pectoral fin
June 1995	male	8.8 m	Mortality	off Rudlet Inlet, VA	several major lacerations
August 1995		17 m	Mortality	off Cape Cod, MA	carried to St. George, Bermuda on the bow of a cruise ship
November 1995	female	10 m	Mortality	Charleston, SC	brought into port on bow of ship
February 1996	female	18 m	Mortality	off Sandy Hook, NJ	possible ship strike
April 1996			Mortality	Penns Grove, NJ	broken vertebrae, blunt trauma to right pectoral fin and surrounding area
July 1996	male	13.5 m	Mortality	Elizabeth, NJ	bow impact to left flank
March 1997		12 m	Mortality	off Virginia Beach, VA	
May 1997		12 m	Mortality	Boston Harbor, MA	possible ship strike
August 1997	female	16.8 m	Mortality	Eastham, MA	broken jaw, cracked scapula partially healed
March 1998	female	16.9 m	Mortality	Salvo County, NC	large hematoma and numerous broken vertebrae
March 1998			Mortality	Cape Henry, VA	
February 1999	male	15.5	Mortality	False Cape State Park, VA	large external wound, extensive fractures, hemorrhaging
November 1999	male	16.2 m	Mortality	Elizabeth, NJ	large wound anterior of the blowhole, severed left flipper, shattered bones
December 2000	female	10.9 m	Mortality	New York Harbor	hemorrhage and fractured bones on right side
January 2001	female	18.1 m	Mortality	New York Harbor	dorsal abrasion marks, hematoma
February 2001	female	14.5 m	Mortality	Port Elizabeth, NJ	brought into port on bow of ship
February 2004	Female	16.3m	Mortality	Port Elizabeth, NJ	Displaced vertebrae, ruptured aorta
September 2004		15m est	Mortality	St. Johns, NB	Fresh carcass on bow of ship

Exhibit 9A-1

SUMMARY OF COLLISIONS BETWEEN SHIPS AND WHALES:
FIN WHALES, 1980 THROUGH 2009

Date	Sex	Length	Outcome[1]	Location	Notes
March 2005	Male	11m	Mortality	Off Virginia Beach, VA	Extensive hemorrhaging and vertebral fractures
April 2005	Male	13.7m	Mortality	Southhampton, NY	Subdermal hemorrhaging
August 2005	Female	18.8	Mortality	Port Elizabeth, NJ	Brought in on bow of ship
September 2005	Female	16.3m	Mortality	Bonne Esperance, QC	Bottom jaw completely severed/broken
September 2005			Mortality	Blanc Sablon, NL	Lower jaw broken associated with massive areas of bruising
March 2007	Female	18m	Mortality	Norfolk, VA	Extensive fracturing of ribs, skull, and vertebrae with associated hemorrhage and edema
May 2007	Male		Mortality	Newark Bay, NJ	Hemorrhage and multiple fractures of the ribs, vertebrae and sternum and the trailing tissue of the animal was marked by propeller cuts
July 2008	Male	14.8	Mortality	Barnegat Inlet, NJ	Vertebral fractures with associated hemorrhaging; hemorrhaging around ball joint of right flipper
October 2009			Mortality	Port Elizabeth, NJ	Fresh carcass with broken flipper, hematomas, and abrasions

Exhibit 9A-1

SUMMARY OF COLLISIONS BETWEEN SHIPS AND WHALES: MINKE WHALES, 1975 THROUGH 2009

Date	Sex	Length	Outcome[1]	Location	Notes
July 1975			Mortality	Boothbay, ME	body heavily bruised
October 1975			Mortality	New Harbor, ME	
May 1988			Mortality	Duxbury Beach, ME	one large gash and three smaller gashes
March 1992	female	6.8 m	Mortality	St. Johns River, FL	propeller strike from a large vessel
March 1993		7.5 m	Mortality	New York Harbor	brought in on bow of ship
September 1993	male	4.3 m	Mortality	Ocean City, NJ	possible ship strike
October 1993			Mortality	Sandbridge, VA	left mandible broken
August 1994		2 m	Mortality	Hampton Roads, VA	lower jaw broken; possible ship strike
June 1995	female	3.7 m	Mortality	Piney Point, MD	large cut through skin on dorsal thorax
October 1995			Unknown	off Cape Cod, MA	Coast Guard cutter (64 m)
July 1996			No Injury	off Race Point, MA	whale hit; resurfaced, no sign of injury
June 1997			Mortality	Sandy Hook, NJ	spine broken
May 1998			Injury	6 nm N of Race Point, MA	
September 1998		6 m	Mortality	Barnstable, MA	
December 1998			Mortality	Cape Cod Bay, MA	body of whale seen in wake of a whale-watching vessel
June 1999		6 m	Mortality	Boston Harbor, MA	
June 2004	Female	6.5m	Mortality	Chatham, MA	Large area of subdermal hemorrhaging
May 2005	Male	5.9m	Mortality	Port Elizabeth, NJ	Ribs shattered; liver ruptured; evidence of internal hemorrhaging
May 2009		8m	Mortality	Off Point Pleasant, NJ	Large hemorrhage at right pectoral

Notes:

[1] Mortality refers to whales killed or possibly killed by vessel collisions from stranding records of dead whales along the U.S. East Coast (Maine to Dade County, Florida): 1975-1996. Data are from the Cetacean Distributional Database, Smithsonian Institution, Washington, D.C. and summarized in Laist et al. (2001).

[2] There were no serious injury or mortalities of right whales as a result of ship strikes in 2007, 2008, or 2009. There were no serious injury or mortalities of humpback whales as a result of ship strikes in 2009.

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Waring GT, Josephson E, Fairfield-Walsh CP, Maze-Foley K, editors. 2009. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2008. NOAA Tech Memo NMFS NE 210; 440 p.

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REGULATORY IMPACT REVIEW CHAPTER 10

10.1 INTRODUCTION

Actions taken to amend fisheries management plans or implement other regulations governing U.S. fisheries are subject to the requirements of a number of Federal laws and executive orders. Among these is Executive Order 12866, which states the following:

> In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environment, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

In accordance with the requirements of Executive Order 12866, this Regulatory Impact Review (RIR) evaluates the modifications to the Atlantic Large Whale Take Reduction Plan (ALWTRP) that the National Marine Fisheries Service (NMFS) is considering. The scope of the discussion includes:

- The objectives and legal basis of the proposal to revise the ALWTRP;
- The problem of large whale entanglement;
- The fisheries affected by the ALWTRP;
- The provisions included in the regulatory alternatives under consideration;
- Estimation of the costs and benefits associated with the alternatives;
- Characterization of the social impacts associated with the alternatives; and
- Integration and comparison of the alternatives' costs and benefits.

10.2 OBJECTIVES AND LEGAL BASIS OF PROPOSED RULES

The revisions to the ALWTRP that NMFS is considering are designed to improve the effectiveness of commercial fishing regulations implemented to conserve and protect three endangered species – North Atlantic right whales (*Eubalaena glacialis*), North Atlantic humpback whales (*Megaptera novaeangliae*), and fin whales (*Balaenoptera physalus*) – thereby fulfilling NMFS' obligations under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). The need for the proposed revisions is demonstrated by the continuing risk of serious injury and mortality of Atlantic large whales due to entanglement in commercial fishing gear.

The MMPA of 1972 provides protection for species or stocks that are, or may be, in danger of extinction or depletion as a result of human activity. The MMPA states that measures should be taken immediately to replenish the population of any marine mammal species or stock that has diminished below its optimum sustainable level. With respect to any stock or species, the "optimum sustainable population" is the number of animals that will result in the maximum productivity of the stock or species, taking into account the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element.

Under the MMPA, the Secretary of Commerce is responsible for the conservation and management of pinnipeds (other than walruses) and cetaceans (including whales). The Secretary of Commerce has delegated MMPA authority to NMFS.

In 1994, Congress amended the MMPA, establishing new provisions to govern the taking of marine mammals incidental to commercial fishing operations.[1] These new provisions include the preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction, and development and implementation of take reduction plans for stocks that may be reduced or are being maintained below their optimum sustainable population due to interactions with commercial fisheries.

Take reduction plans are required for all "strategic stocks." Under the MMPA, a "strategic stock" is a stock: (1) for which the level of direct human-caused mortality exceeds the Potential Biological Removal (PBR) level; (2) that is declining and is likely to be listed under the ESA in the foreseeable future; or (3) that is listed as a threatened or endangered species under the ESA or as a depleted species under the MMPA.[2] The immediate goal of a take reduction plan is to reduce, within six months of its implementation, the mortality and serious injury of strategic stocks incidentally taken in the course of U.S. commercial fishing operations to below the PBR levels established for such stocks. The long-term goal of a take reduction plan is to reduce, within five years of its implementation, the incidental mortality and serious injury of strategic marine mammals taken in the course of commercial fishing operations to insignificant levels

[1] As defined in the MMPA, the term "take" means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.

[2] The Potential Biological Removal (PBR) level is defined in the MMPA as the maximum number of animals, not including natural mortalities, which may be removed from a marine mammal stock annually while allowing that stock to reach or maintain its optimum sustainable population. Procedures for calculating the PBR level are described in the MMPA.

approaching a zero mortality and serious injury rate, taking into account the economics of the fishery, the availability of existing technology, and existing state or regional fishery management plans.

Right whales, humpback whales, and fin whales are listed as endangered species under the ESA, and are thus considered strategic stocks under the MMPA. Pursuant to its obligations under the MMPA, NMFS in 1996 established the Atlantic Large Whale Take Reduction Team (ALWTRT), an advisory group empaneled to develop recommendations for reducing the incidental take of large whales in commercial fisheries along the Atlantic Coast. The ALWTRT includes representatives of the fishing industry, state and Federal resource management agencies, the scientific community, and conservation organizations. The purpose of the ALWTRT is to provide guidance to NMFS in developing and amending the ALWTRP to meet the goals of the MMPA with respect to Atlantic large whales.

In addition to the MMPA, the ESA provides a legal foundation for measures to protect right whales, humpback whales, and fin whales. The ESA provides for the conservation of species that are in danger of extinction throughout all or a significant portion of their range, as well as the conservation of the ecosystems on which these species depend.[3] The right whale, humpback whale, and fin whale species are all federally-listed as endangered and are therefore subject to protection under the ESA.

Section 7 of the ESA directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and to ensure that their actions do not jeopardize listed species or destroy or adversely modify the critical habitat of those species. When a proposed Federal action may affect an ESA-listed marine species, Section 7 directs that the "Action agency" consult with the Secretary of Commerce; this is referred to as a Section 7 consultation.[4,5]

To assess impacts on large whale and sea turtle species protected under the ESA, NMFS has prepared Biological Opinions for the continued authorization of Federal fisheries under the Fishery Management Plans (FMPs) for the multispecies, spiny dogfish, and monkfish fisheries, and under Federal regulations for the lobster fishery, amongst others. Section 7 consultations were first initiated for each of these fisheries either at the time the FMP was developed or, in the case of lobster, when a significant amendment (Amendment 5) to the Federal Lobster Management Plan was under consideration. The Northeast multispecies fishery has a long consultation history, including formal and informal Section 7 consultations, beginning with a formal consultation initiated on June 12, 1986. Formal consultation was first initiated for spiny dogfish on August 13, 1999; for monkfish on December 21, 1998; and for lobster on March 23, 1994. Subsequent ESA Section 7 consultations on those fisheries incorporated the ALWTRP as

[3] "Species," as defined by the ESA, includes any subspecies of fish, wildlife, or plant and any distinct population segment of any vertebrate species which interbreeds when mature.

[4] The "Action agency" is the Federal agency charged with permitting, conducting or funding the proposed activity serving as the basis for the consultation.

[5] Federal agencies must consult with the Secretary of the Interior when a proposed action may affect an ESA-listed species under the Department of Interior's purview.

a Reasonable and Prudent Alternative (RPA) to avoid jeopardy to right whales. NMFS reinitiated consultation on May 4, 2000, for the multispecies, spiny dogfish and monkfish gillnet fisheries, and on June 22, 2000, for the lobster fishery, following new whale entanglements resulting in serious injuries to right whales, at least one right whale mortality in gillnet gear, new information indicating a declining status for western North Atlantic right whales, and revisions to the ALWTRP.

The Biological Opinions from the May/June 2000 Section 7 consultations, finalized June 14, 2001, found that NMFS' authorization of these Federal fisheries, as modified by the ALWTRP requirements in effect at that time, was likely to jeopardize the continued existence of the western North Atlantic right whale. The Biological Opinions identified a set of Reasonable and Prudent Alternatives designed to avoid the likelihood of jeopardy to right whales. These measures included:

- Seasonal Area Management (SAM);
- Dynamic Area Management (DAM);
- An expansion of gillnet gear modification requirements and restrictions to Mid-Atlantic waters and modification of fishing practices in Southeastern waters;
- Continued gear research and modifications; and
- Additional measures that implement and monitor the effectiveness of the RPAs.

These measures were intended, in combination, to reduce the risk of serious injury or mortality of large whales from entanglements in commercial fishing gear, and to minimize adverse impacts if entanglements occur.

Following implementation of the measures described above, entanglements leading to serious injury or death of protected whales, including the North Atlantic right whale, continued to occur. Accordingly, NMFS reinitiated consultation on the continued authorization of a number of fisheries and began to develop modifications to the ALWTRP. At its 2003 meeting, the ALWTRT agreed to manage entanglement risks by focusing first on reducing the risk associated with groundlines, then reducing the risk associated with vertical lines. In October 2007, NMFS issued a final rule that replaced the SAM and DAM programs with broad-based gear modification requirements, including the use of sinking groundline; expanded weak link requirements; additional gear marking requirements; changes in boundaries; seasonal restrictions for gear modifications; expanded exempted areas; and changes in regulatory language for the purposes of clarification and consistency (72 FR 57104, October 5, 2007). The broad-based sinking groundline requirement became fully effective on April 5, 2009. This final rule also incorporated an amendment to the ALWTRP (72 FR 34632, June 25, 2007) that implemented, with revisions, previous ALWTRP regulations by expanding the Southeast U.S. Restricted Area to include waters within 35 nm (64.82 km) of the South Carolina coast, dividing the Southeast

U.S. Restricted Area into Southeast U.S. Restricted Areas North and South, and modified regulations pertaining to gillnetting within the Southeast U.S. Restricted Area.

Following implementation of these measures, NMFS and the ALWTRT turned their collective focus to vertical line risk reduction. At the 2009 ALWTRT meeting, the Team agreed on a schedule to develop a management approach to reduce the risk of serious injury and mortality due to vertical line. As a result of this schedule, NMFS committed to publishing a final rule to address vertical line entanglement by 2014. NMFS also reinitiated consultation on continued authorization of FMPs for a number of fisheries (American lobster; bluefish; spiny dogfish; monkfish; Northeast multispecies; skate; Atlantic mackerel, squid, and butterfish; and summer flounder, scup and Northern black sea bass). These consultations concluded in October 2010. After identifying the steps being taken by NMFS to develop, analyze and implement a vertical line reduction rule, the agency's Biological Opinions concluded that continued operation of the fisheries noted above would be likely to adversely affect, but not jeopardize, the continued existence of right, humpback, and fin whales.

10.3 PROBLEM ADDRESSED BY ALWTRP

Right whales, humpback whales, and fin whales are listed as endangered species under the ESA, and are thus considered strategic stocks under the MMPA. The measures that the ALWTRP requires focus on the conservation of these species, and also benefit minke whales. The current status of these species is summarized below:

- **Right Whale**: The western North Atlantic right whale (*Eubalaena glacialis*) is one of the rarest of all large cetaceans. It is among the most endangered species in the world and is listed as endangered under the ESA. NMFS considers the best estimate of the population of North Atlantic right whales to be approximately 444, well below the optimum sustainable population (OSP).[6] PBR for this species is currently 0.9 whales per year (Waring et al., 2013).

- **Humpback Whale**: The North Atlantic humpback whale (*Megaptera novaeangliae*) is listed as an endangered species under the ESA. For the Gulf of Maine stock of humpback whales, NMFS estimates a minimum population of 823. PBR for this stock is currently 2.7 whales per year (Waring et al., 2013).

- **Fin Whale**: The fin whale (*Balaenoptera physalus*) is listed as an endangered species under the ESA. Although researchers debate the existence of several distinct subpopulations of this species, NMFS currently treats all fin whales within U.S. waters of the North Atlantic as

[6] The optimum sustainable population of any stock or species is defined as the number of animals that will result in the maximum productivity of the stock or species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element (16 USC 1362(9)).

members of a single population, with an estimated minimum size of 2,817. PBR for this species is currently 5.6 whales per year (Waring et al., 2013).

- **Minke Whale**: The minke whale (*Balaenoptera acutorostrata*) is not listed as endangered or threatened under the ESA. Minke whales in U.S. waters of the North Atlantic are considered part of the Canadian east coast stock of this species. NMFS estimates a minimum population for this stock of 16,199; PBR is currently 162 whales per year (Waring et al., 2013).

Atlantic large whales are at risk of becoming entangled in fishing gear because the whales feed, travel and breed in many of the same ocean areas utilized for commercial fishing. Fishermen typically leave fishing gear such as gillnets and traps/pots in the water for a discrete period, after which time the nets/traps/pots are hauled and their catch retrieved. While the gear is in the water, whales may become entangled in the lines and nets that comprise trap/pot and gillnet fishing gear. The effects of entanglement can range from no permanent injury to death.

A scarification analysis conducted by the New England Aquarium (Knowlton et al., 2002) found that juvenile right whales are entangled with greater frequency than adults. Juvenile animals may not have sufficient strength to break free from entangling lines, which can lead to serious injury and infection resulting from the animal "growing into" the lines.

A study of right whale and humpback whale entanglements (Johnson et al., 2005) found that in cases where the point of gear attachment was known, right whale entanglements frequently (77.4 percent; 24 of 31 entanglement events) involved the mouth, which may indicate that many entanglements occur while whales are feeding. The study also found that humpback whales are more commonly reported with entanglements in the tail region (53.0 percent; 16 of 30 entanglement events), in cases where the point of attachment was known.[7] The number of entanglements for which gear type can be identified is too small to detect any trends in the type of gear involved in lethal entanglements. Trap/pot and gillnet gear, however, seem to be the most common, as in 89 percent of the cases the gear was identified as or consistent with trap/pot or gillnet gear (Johnson et al., 2005).[8] The study confirmed that vertical lines and floating groundlines posed risks for large whales; however, the authors concluded that any type and part of fixed gear is capable of entangling a whale, and several body parts of the whale can be involved.

[7] In some cases, other parts of the body in addition to the tail may have been entangled.

[8] According to Johnson et al. (2005), analyses focused on entanglements from which the gear was examined by NMFS gear specialists, as well as other sources considered reliable, but also included entanglements for which the gear type and/or part was identified (e.g., by a fisherman or biologist) but not recovered. In some cases, recovered gear can definitively be traced back to a particular fishery, but in other cases, certain parts of the gear may be recovered that could be considered consistent with gear that is used in a particular fishery. For example, the gear recovered from right whale #3107 consisted of line with a 600-pound weak link, and thus was considered consistent with gear used in the lobster trap/pot fishery. Note that Johnson et al. (2005) have classified this whale's entanglement as lobster trap/pot gear that was set in an unknown location.

Exhibit 10-1 summarizes all known serious injury entanglements of right, humpback, fin, and minke whales from 1997 through 2010, the most recent year that data is available for all species. Humpback whales account for the greatest number of serious injury entanglements (35), followed by right whales (11); minke whales account for five, and fin whales account for four.

Exhibit 10-1

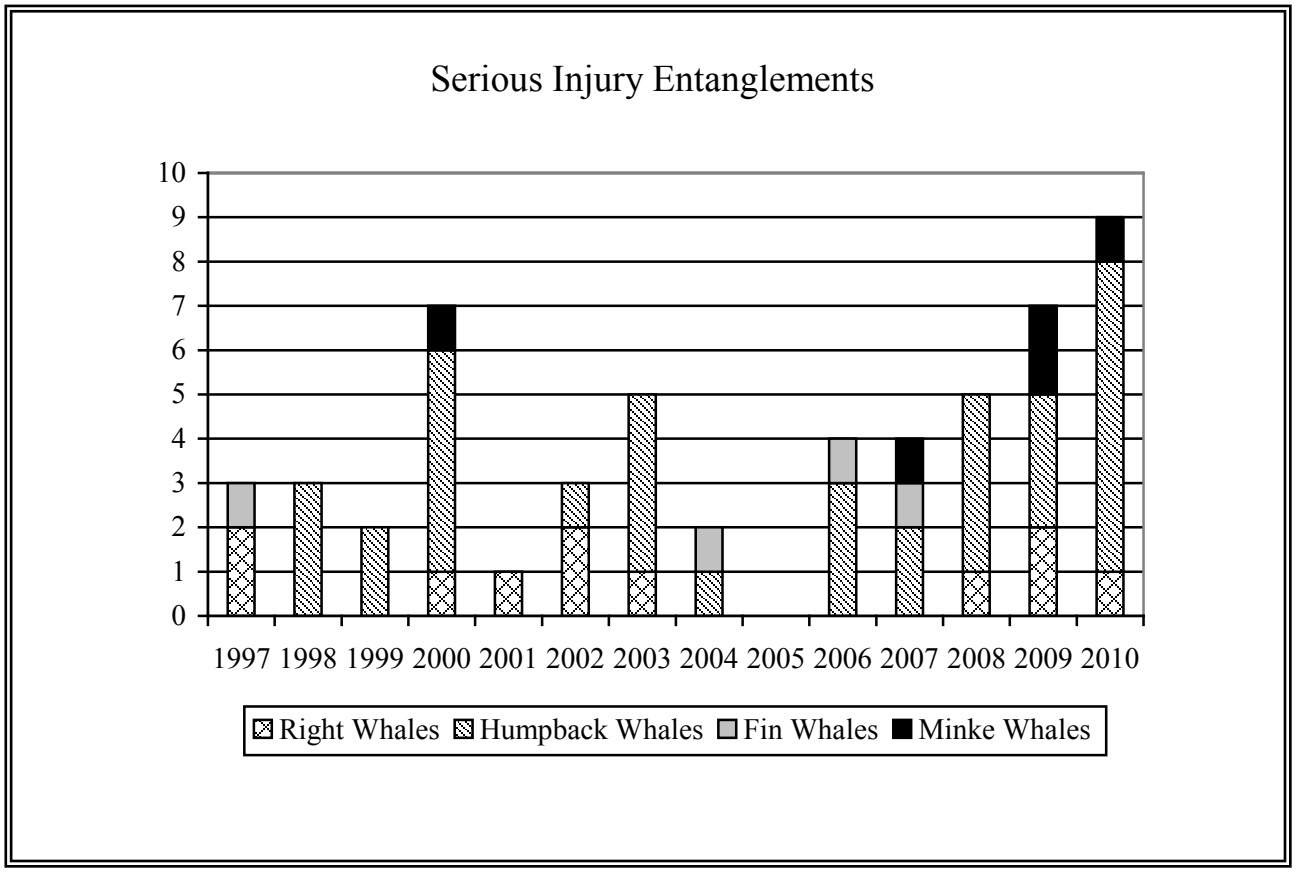
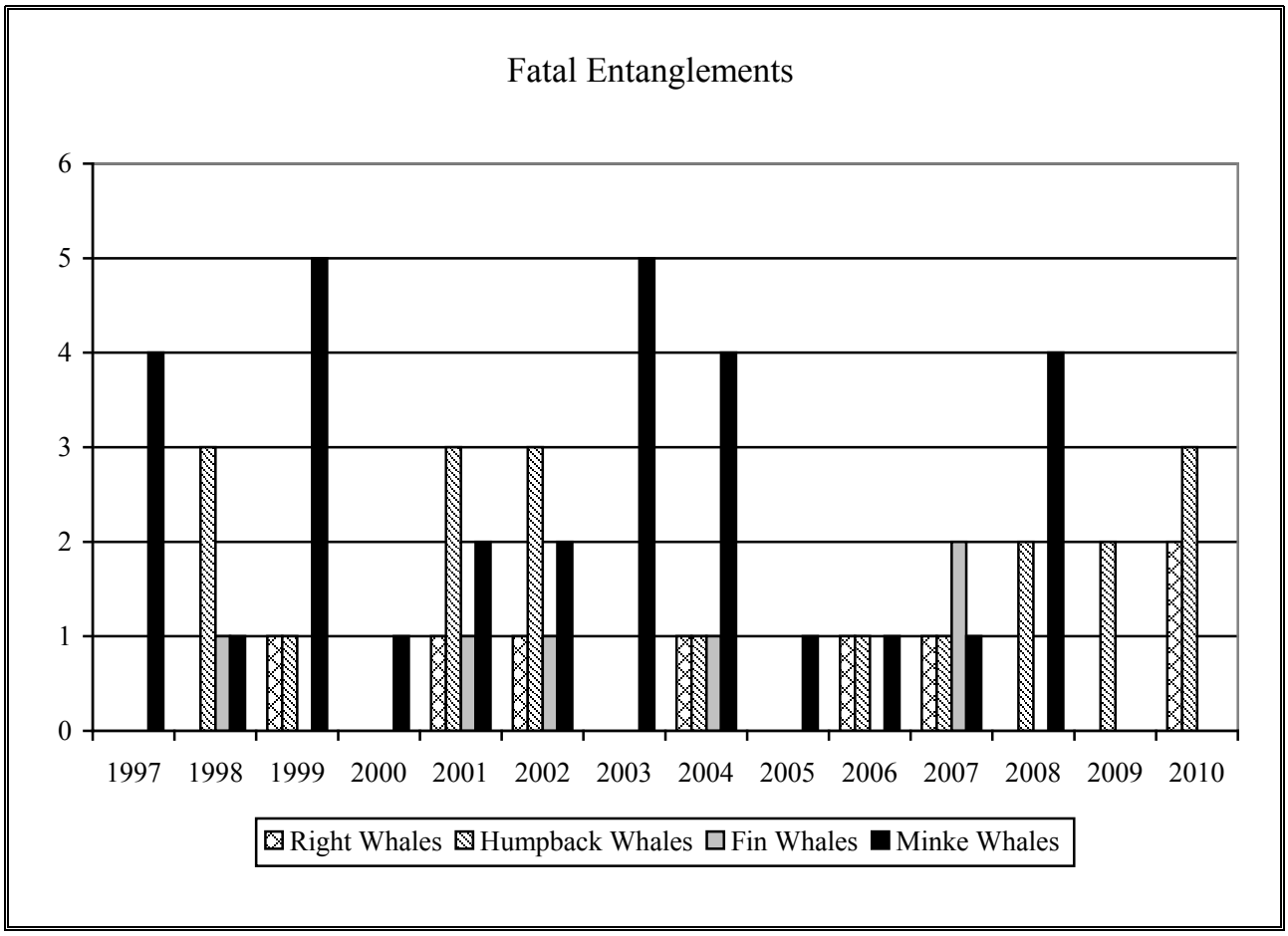


Exhibit 10-2 presents available data on fatal entanglements of Atlantic large whales from 1997 through 2010, the most recent year that data is available for all species. Minke whales account for the most known entanglement mortalities (31), followed by humpback whales (20), right whales (8), and fin whales (6).

Exhibit 10-2



10.4 AFFECTED FISHERIES

As required by the MMPA, NMFS maintains a List of Fisheries that places each commercial fishery into one of three categories. Fisheries are categorized according to the level of serious injury and mortality of marine mammals that occurs incidental to that fishery. The categorization of a fishery in the List of Fisheries determines whether participants in that fishery are subject to certain provisions of the MMPA such as registration, observer coverage, and take reduction plan requirements. Individuals fishing in Category I or II fisheries must comply with requirements of any applicable take reduction plan.[9]

Category I fisheries are associated with frequent incidental mortality and serious injury of marine mammals. These fisheries have a serious injury/mortality rate of 50 percent or more of a stock's potential biological removal rate. Category II fisheries are associated with occasional incidental mortality and serious injury of marine mammals, and have a serious injury/mortality

[9] Once a fishery is elevated to Category I or II status, it is eligible for inclusion under the ALWTRP; however, NMFS maintains discretion regarding which fisheries it feels must be folded into the Plan in order to provide adequate protection to right, humpback, and fin whales.

rate of more than one percent but less than 50 percent of a stock's PBR. Category III fisheries rarely cause serious injury or mortality to marine mammals. Category III fisheries have a serious injury/mortality rate of one percent or less of a stock's PBR (NOAA, February 2002).

The List of Fisheries indicates which fisheries NMFS may regulate under the ALWTRP.[10] Specific fisheries were initially identified for inclusion under the ALWTRP based on documented whale interactions. In 1996, NMFS announced its intention to regulate the following Category I or II fisheries under the ALWTRP, based on the following documented whale interactions (61 FR 40819-40821):

- **Gulf of Maine, U.S. Mid-Atlantic lobster trap/pot fishery:**[11] One record of a serious injury and/or mortality of a northern right whale, and 11 records of a serious injury and/or mortality of humpback whales were reported for this fishery from 1990 to 1994. In addition, NMFS received several reports of right whale entanglements prior to 1990 and after 1994 which are or may be attributable to the lobster fishery.

- **U.S. Mid-Atlantic coastal gillnet fishery:**[12] Between 1989 and 1992, 31 humpback whales stranded from New Jersey through Virginia. Twenty-five percent of the stranded whales had scars consistent with net entanglement. Between 1990 and 1996, 10 humpbacks stranded in Virginia; three animals had rope abrasion injuries consistent with the type of injury expected to result from entanglement in gillnets.

- **New England multispecies sink-gillnet fishery:**[13] As of 1996, strategic marine mammal species/stocks seriously injured or killed in this fishery included several humpback whales and a northern right whale.

- **Southeastern U.S. Atlantic shark gillnet fishery:** A right whale calf was observed in February, 1994, approximately ten miles off Jacksonville, Florida, with severe cuts and other injuries. Researchers believe, based on the observed injuries, that the calf was entangled in gillnet gear and hauled back into the fishing vessel's propeller as the gear was being retrieved. This method of gear retrieval is consistent with the shark gillnet fishery.

This list has evolved since 1996, reflecting both changes in nomenclature and modification of the ALWTRP to address additional fisheries. At present, the fisheries regulated under the ALWTRP include the Northeast anchored float gillnet fishery; the Northeast/Mid-Atlantic American lobster

[10] Marine mammal take reduction plans relevant to Category I and II fisheries in the Atlantic Ocean include the Harbor Porpoise Take Reduction Plan (50 CFR 229.34), the Atlantic Large Whale Take Reduction Plan (50 CFR 229.32), and the Bottlenose Dolphin Take Reduction Plan.

[11] Currently the Northeast/Mid-Atlantic American lobster trap/pot fishery.

[12] Currently the U.S. Mid-Atlantic gillnet fishery.

[13] Currently the Northeast multispecies fishery.

trap/pot fishery; the Northeast sink gillnet fishery; the Northeast drift gillnet fishery; the Atlantic blue crab fishery; the Atlantic mixed species trap/pot fisheries (fish, crabs, conch, whelk, shrimp, and other species); the Southeast Atlantic gillnet fishery; the Southeastern U.S. Atlantic shark gillnet fishery; and the U.S. Mid-Atlantic gillnet fishery.

10.5 REGULATORY ALTERNATIVES

NMFS has identified seven regulatory alternatives for consideration. The first of these (Alternative 1) is the No Action Alternative, which would make no changes to the ALWTRP. The remaining alternatives propose modifications to the ALWTRP that include some combination of the following:

- **Gear Configuration Requirements –** All of the alternatives propose area-specific minimum trawl lengths for trap/pot fisheries in the Northeast; the minimums specified vary by alternative (see below). Additional provisions mandate the use of single traps or pots and specify weak link, vertical line strength, and vertical line composition requirements for trap/pot fisheries in the Southeast; these requirements are the same for all action alternatives.

- **Closures –** Several alternatives would prohibit ALWTRP trap/pot vessels from fishing in designated areas during designated periods (see below).

- **Gear Marking –** Each of the action alternatives includes revised gear marking requirements for vessels subject to the ALWTRP. The proposed gear marking scheme calls for three 12-inch marks per vertical line, adhering to a regional color-coding system. Under Alternatives 2 through 6 (Draft), the requirements would apply to all gear set in non-exempt waters, as well as to gear set in exempt waters of Maine and New Hampshire. Alternative 6 (Preferred) would impose similar requirements, but would not require gear set landward of Maine's exemption line to be marked.

Exhibit 10-3 provides an overview and comparison of the alternatives. With the exception of Alternative 6 (Preferred), all of the alternatives, were considered in NMFS' Draft Environmental Impact Statement (DEIS). Alternative 6 (Preferred) is similar to Alternative 6 (Draft), but differs from it in several respects. As noted above, Alternative 6 (Preferred) would not require gear set landward of Maine's exemption line to be marked. In addition:

- Alternative 6 (Preferred) would permit two-trap trawls in Maine pocket waters (see Chapter 3 for a description of these areas).

- Alternative 6 (Preferred) would permit the use of single traps within a quarter-mile buffer area surrounding three Maine islands (Monhegan, Ragged, and Matinicus).

- Alternative 6 (Preferred) would maintain existing ALWTRP requirements in New Hampshire state waters, including the requirement to use sinking groundline.

- Alternative 6 (Preferred) would permit the use of two-trap trawls in Rhode Island state waters.

Exhibit 10-4 describes the gear configuration requirements of the action alternatives in greater detail, showing how they vary. Most notably, Alternatives 3, 5, 6 (Draft), and 6 (Preferred) modify the minimum trawl length restrictions incorporated under Alternative 2; the trawling requirements under Alternative 4 are equivalent to those specified in Alternative 2.

Alternatives 2 through 6 (Preferred) include a set of special requirements for the blue crab and OTP fisheries operating in ALWTRP-regulated waters off the coasts of South Carolina, Georgia, and Florida. In waters off South Carolina and Georgia, the alternatives require affected vessels to fish singles; use weak links with a breaking strength no greater than 600 pounds; use vertical line with a breaking strength no greater than 2,200 pounds; and use vertical line that is free of weights, knots, and splices. The requirements for waters off Florida are similar, but specify 200-pound weak links and the use of sink rope with a breaking strength no greater than 1,500-pounds over the entire length of each vertical line.

Exhibit 10-3

SUMMARY OF PROPOSED ALTERNATIVES

Alternative	Gear Restrictions	Closures	Gear Marking
Alternative 1 (No Action)	- No change	- None	- No change
Alternative 2	- Area-specific trawling requirements in Northeast - Southeast gear restrictions (weak links, line strength, line composition, singles)	- None	- New system requiring three 12-inch marks per vertical line, adhering to a regional color-coding system - Required in non-exempt waters and ME/NH exempt waters
Alternative 3	- Area-specific trawling requirements with modifications in Maine Zones A-G and exemptions in NH state waters - Southeast: Same as Alternative 2	- CCB Restricted Area	- Same as Alternative 2
Alternative 4	- Same as Alternative 2	- Jordan Basin - Jeffreys Ledge - Massachusetts Restricted Area #1	- Same as Alternative 2
Alternative 5	- Same as Alternative 3	- Jordan Basin - Jeffreys Ledge - Massachusetts Restricted Area #1	- Same as Alternative 2
Alternative 6 (Draft)	- Same as Alternative 3, but with revised trawling requirement in MA state waters (2 traps per trawl rather than 3 traps per trawl)	- Massachusetts Restricted Area #2	- Same as Alternative 2
Alternative 6 (Preferred)	- Same as Alternative 6 (Draft), but with pairs allowed in ME pocket waters and RI state waters; buffer for ME islands; modified exemption for NH state waters	- Massachusetts Restricted Area #2	- Same as Alternative 2, but not required in Maine exempt waters

Exhibit 10-4

SUMMARY OF GEAR RESTRICTION PROVISIONS

Region	Subarea[1]	Component	Alt. 2[2]	Alt. 3	Alt. 4	Alt. 5	Alt. 6 (Draft)	Alt. 6 (Preferred)
North-east	ME Zones A-G: State Waters	Trawl Length	2 to 4	2	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3, ¼ mile island buffer
	ME Zones A-G: (3-12 mile)	Trawl Length	5 or 10	N.A.	= Alt. 2	N.A.	N.A.	N.A.
	ME Zones A-G: (12+ mile)	Trawl Length	10 or 20	15	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
	ME Zones A-G: (3-6 mile)	Trawl Length	N.A.	3	N.A.	= Alt. 3	= Alt. 3	= Alt. 3
	ME Zones A-G (6-12 mile)	Trawl Length	N.A.	5 or 10	N.A.	= Alt. 3	= Alt. 3	= Alt. 3
	MA State Waters	Trawl Length	3	= Alt. 2	= Alt. 2	= Alt. 2	2	2
	NH State Waters	Trawl Length	3	Exempt	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3[3]
	RI State Waters	Trawl Length	3	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	2
	LMA 1 Other (3-12 mile)	Trawl Length	10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	LMA 1 Other (12+ mile)	Trawl Length	20	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	LMA OC (3-12 mile)	Trawl Length	10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	LMA OC (12+ mile)	Trawl Length	20	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	LMA 2 (3-12 mile)	Trawl Length	10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	LMA 2 (12+ mile)	Trawl Length	20	15	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
	LMA 2/3 Overlap (12+mile)	Trawl Length	20	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
	LMA 3 (3-12 mile)	Trawl Length	10	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
	LMA 3 (12+ mile)	Trawl Length	20	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
South-east	Florida State Waters	Weak links	≤200 lbs.	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	
		Vertical Line	Breaking strength ≤1,500 lbs., one continuous piece of sinking line	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
		Other	One buoy line with one trap, gear mark	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Georgia and South Carolina State Waters	Weak Links	≤600 lbs.	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
		Vertical Line	Breaking strength ≤2,200 lbs., one continuous piece of sinking line	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
		Other	One buoy line with one trap, gear mark	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Federal Waters	Weak links	Status quo	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
		Vertical Line	Must be one continuous piece of sinking line	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
		Other	Must use one buoy line with one trap, gear mark, bring gear back to shore at conclusion of trip	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2

Notes:

1. LMA – Lobster Management Area; OC – Outer Cape.
2. Trawls with 5 or fewer traps may have only one endline.
3. Gear set in New Hampshire state waters would be exempt from trawling requirements, but must satisfy existing ALWTRP requirements.

As noted, some of the alternatives under consideration would introduce the seasonal closure of designated areas to trap/pot gear. Exhibit 10-5 summarizes the basic parameters of each closure, while Exhibit 10-6 presents a series of maps illustrating the location of the areas in which fishing would be restricted. The objective of these provisions is to reduce the concentration of fishing gear when whales are likely to congregate in the areas designated for closure, thus reducing the risk of entanglement. Chapter 3 provides additional detail on the rationale for each closure.

Exhibit 10-5

SUMMARY OF AREA CLOSURE PROVISIONS

Closure	Regulatory Alternative	Closure Period	Size (square miles)
CCB Restricted Area	3	February - April	644
Jordan Basin	4 & 5	November - January	725
Jeffreys Ledge	4 & 5	October – January	607
Massachusetts Restricted Area #1	4 & 5	January - April	2,464
Massachusetts Restricted Area #2	6 (Draft) & 6 (Preferred)	January - April	2,161

Exhibit 10-6

LOCATION OF RESTRICTED AREAS

JORDAN BASIN RESTRICTED AREA

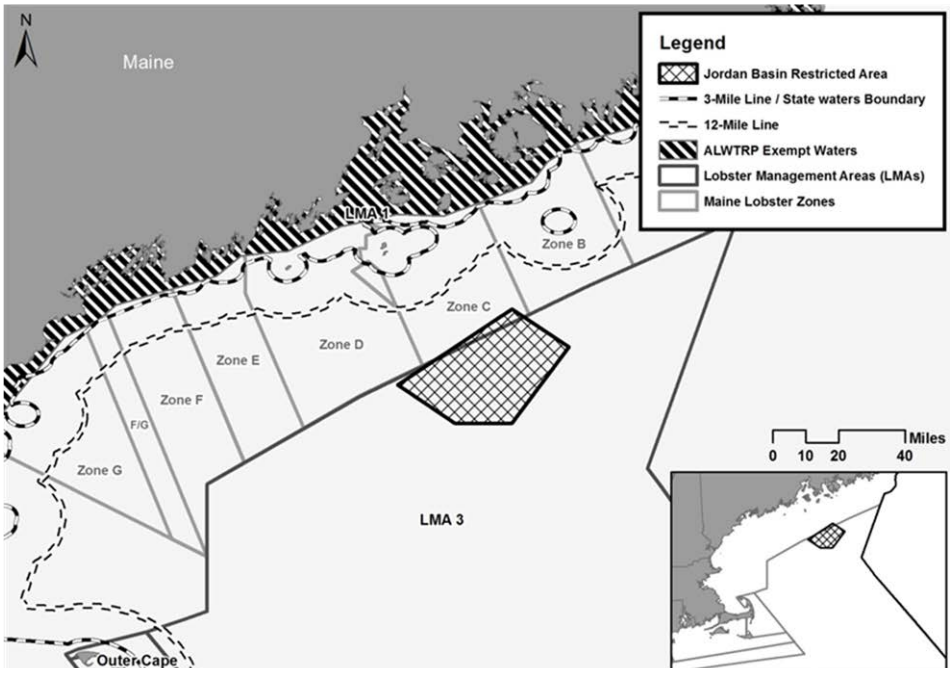
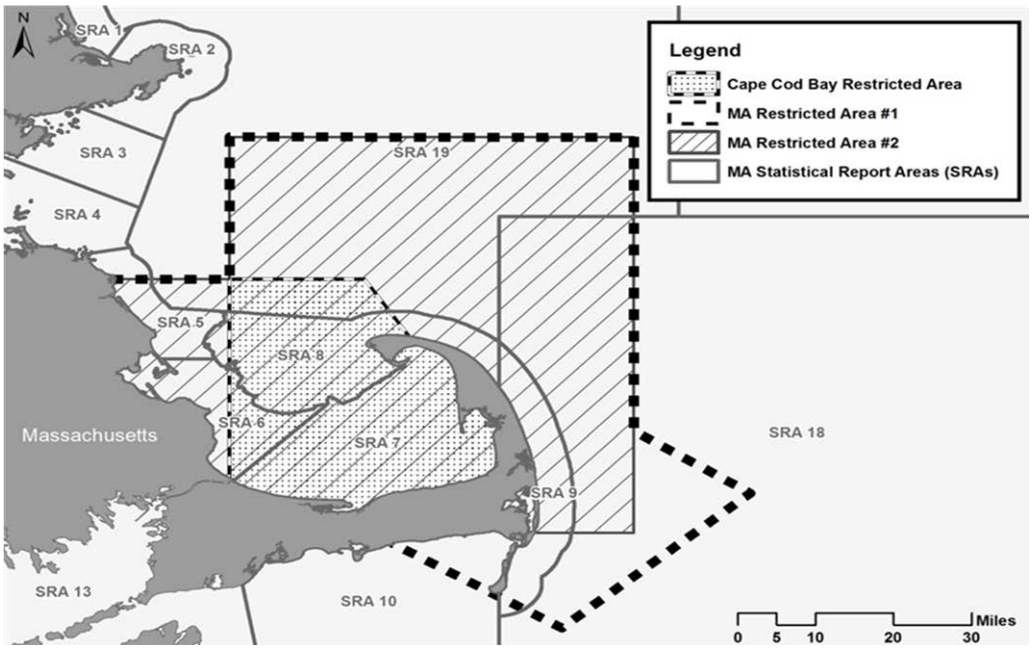


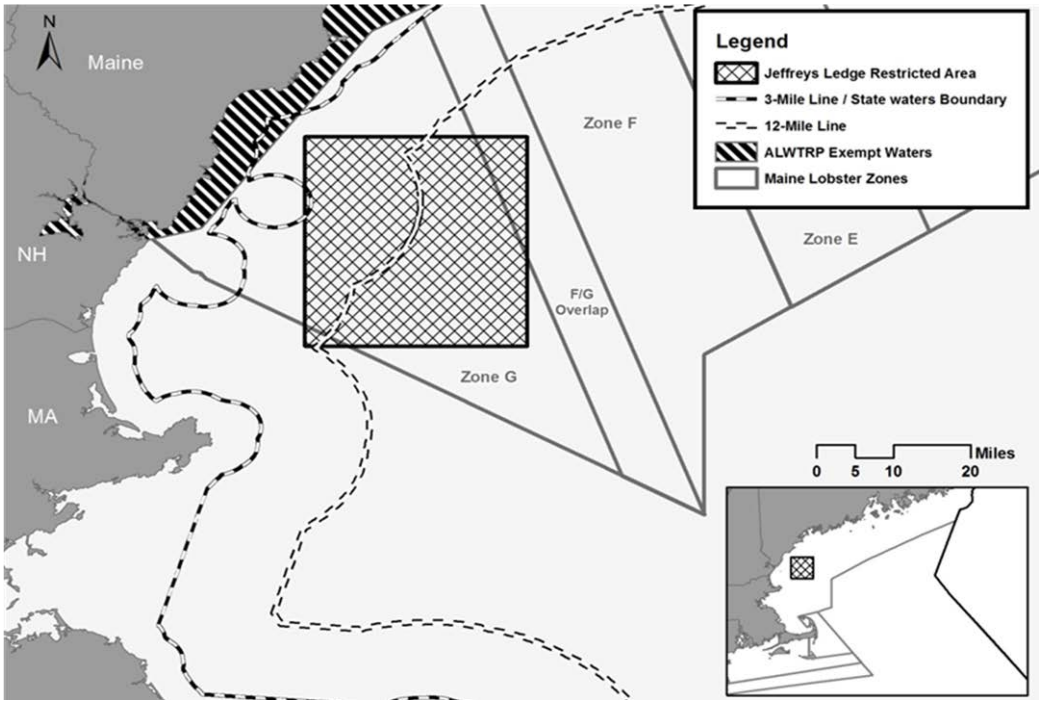
Exhibit 10-6

LOCATION OF RESTRICTED AREAS (continued)

CAPE COD CLOSURES



JEFFREYS LEDGE RESTRICTED AREA



10.6 ECONOMIC ANALYSIS OF ALTERNATIVES

10.6.1 Benefit-Cost Framework

Benefit-cost analysis (BCA) is the preferred method for analyzing the consequences of a regulatory action such as modifying the requirements of the ALWTRP.[14] BCA is a well-established procedure for assessing the "best" course or scale of action, where "best" is that course which maximizes net benefits (i.e., benefits minus costs).[15] Because BCA assesses the value of an activity in net benefit terms, it requires that a single metric, most commonly dollars, be used to gauge both benefits and costs. The data and economic models necessary to estimate costs may be difficult or costly to gather and develop, and a comprehensive analysis of the costs associated with a regulatory action is not always feasible. Nonetheless, the principle is straightforward, and it is generally possible in practice to develop a monetary estimate of at least some portion of regulatory costs. This is the case for costs stemming from changes to the ALWTRP, which would impose additional restrictions on commercial fishing operations.

Assessing the benefits of changes to the ALWTRP in a BCA framework is also straightforward in principle but much more difficult in practice. To the extent that new regulations would reduce the risk that whales will suffer serious injury or mortality as a result of entanglement in commercial fishing gear, they would produce real benefits. Ideally, these benefits would be measured first by a biological metric, and then by a dollar metric. A biological metric could take the form of the expected decrease in extinction risk, increase in the annual growth of the population, or similar measures. A BCA would then value these quantified biological benefits in terms of willingness-to-pay, the standard economic measure of economic value recommended by the Office of Management and Budget (OMB).[16] This would produce a dollar estimate of the benefits of the change in regulations, which could then be compared directly to the costs. In the case of the ALWTRP, however, the data required to complete such an analysis are not available. Estimation of the economic benefits attributable to each of the regulatory alternatives that NMFS is considering would require a more detailed understanding of the biological impacts of each measure than current models can provide. It also would require more extensive research than economists have conducted to date on the relationship between conservation and restoration of these species and associated economic values.

In the absence of the information required to conduct a full BCA, the discussion that follows presents qualitative information on the benefits that may stem from improved protection of endangered whales, coupled with a quantitative indicator of the potential impact of each alternative. It then presents estimates of the costs attributable to each alternative. As discussed later in this chapter, the analysis uses this information to evaluate the cost-effectiveness of the regulatory alternatives under consideration. Because the alternatives vary with respect to the benefits they would achieve, it is not possible to identify a superior option based on cost-

[14] U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf.

[15] Zerbe, R., and D. Dively, 1994. *Benefit Cost Analysis in Theory and Practice*, New York: HarperCollins.

[16] OMB, 2003.

effectiveness alone.[17] Nonetheless, the cost-effectiveness figures provide a useful means of comparing the relative impacts of the regulatory provisions that each alternative incorporates.

10.6.2 Benefits of Large Whale Protection

Since the suspension of commercial whaling in the U.S., there has been no conventional market for the consumptive use of products derived from whales. Nonetheless, whale protection and associated increases in whale populations may generate two types of benefits: (1) non-consumptive use benefits; and (2) non-use benefits.

10.6.2.1 Non-Consumptive Use Benefits

A variety of recreational activities involve the non-consumptive use of natural resources, either in a market or non-market context. The opportunity to enjoy one such activity, whale watching, has fostered the development of the commercial whale watching industry. Although current data on the industry are lacking, a study by Hoyt (2000) suggests that roughly half of all commercial whale watching worldwide occurs in the U.S., and that much of this activity is centered in New England.[18] As shown in Exhibit 10-7, the Hoyt study identified 36 whale watching businesses in New England, with most operating multiple vessels. Hoyt estimated that over one million individuals each year take whale watching tours in the region, generating over $30 million in annual revenue for the industry. Because these figures only apply to permitted and registered operations, the full scale and economic impact of whale watching activity is likely to be greater.

Exhibit 10-7

NEW ENGLAND WHALE WATCHING INDUSTRY

State	Number of Operations	Number of Vessels	Annual Ridership	Annual Revenue (millions $)
Massachusetts	17	30-35	1,000,000	$24.0
New Hampshire	4	6-10	80,000	$1.9
Maine	14	18-24	137,500	$4.4
Rhode Island	1	1	12,500	$0.3
TOTAL	36	55-70	1,230,000	$30.6

Source: Hoyt, 2000.

The development of the commercial whale watching industry provides a valuable source of information on individuals' willingness to pay for the opportunity to experience whales in their natural environment. This in turn makes it feasible, at least in theory, to evaluate the potential impact of changes in willingness to pay on surplus values in this market, i.e.:

[17] OMB, 2003.

[18] Although whale watching operations exist in the Mid- and South Atlantic states, the level of activity is lower and cannot be reliably distinguished from tours to view other species, such as dolphins.

- **Consumer Surplus –** the difference between the maximum amount that consumers would be willing to pay to go on a whale watch and the price they actually pay;

- **Producer Surplus** – the difference between the payments commercial whale watching enterprises receive for their services and the economic costs they incur to provide them.[19]

Any increase in consumer or producer surplus represents a gain in economic welfare, and thus a benefit to society.

A number of studies have demonstrated substantial levels of consumer surplus in the commercial whale watching market. For example, a study of the demand for whale watching at the Stellwagen Bank National Marine Sanctuary found that tour customers realized an average consumer surplus of approximately $26 per trip (Hoagland and Meeks, 2000). Several studies have noted that customer enjoyment is positively correlated with the number of whales sighted. The Stellwagen Bank study asked respondents to cite the most attractive features of a whale watch; the top responses included the number of whales seen as well as the number of species seen. Likewise, Loomis and Larson (1994) determined that whale watch customers viewing gray whales were willing to pay more for the experience when populations increased. This suggests that an increase in the population of whales could lead to increased demand for commercial whale watching tours, and a concomitant increase in consumer and/or producer surplus values in the market for these services.

It is not feasible at present to estimate the impact of potential modifications to the ALWTRP on producer or consumer surplus values in the whale watching market. Estimation of these impacts would require the ability to forecast the impact of various management measures on the population of whales, coupled with a far more detailed understanding of the relationship between an increase in this population and demand for viewing opportunities. Given the level of activity in the industry, however, it is reasonable to assume that the benefits associated with additional opportunities to see, photograph, and otherwise experience whales in their natural environment could be substantial.

10.6.2.2 Non-Use Benefits

The protection and restoration of populations of endangered whales may also generate non-use benefits.[20] Economic research has demonstrated that society places economic value on (relatively) unique environmental assets, whether or not those assets are ever directly exploited. For example, society places real (and potentially measurable) economic value on simply

[19] The economic cost of the resources (raw materials, capital, and labor) used to provide a particular good or service to consumers is the opportunity cost of that use; i.e., the value of the goods and services those resources could otherwise produce. Market distortions may yield differences between the costs that producers bear and the true economic costs of the resources they employ.

[20] The discussion of non-use benefits is based in part on NMFS, *Steller Sea Lion Protection Measures, Final Supplemental Environmental Impact Statement*, November 2001.

knowing that large whale populations are flourishing in their natural environment (often referred to as "existence value") and will be preserved for the enjoyment of future generations.[21] Using survey research methods, economists have developed several studies of non-use values associated with protection of whales or other marine mammals. Exhibit 10-8 summarizes these studies. In each, researchers surveyed individuals on their willingness to pay (WTP) for programs that would maintain or increase marine mammal populations. The most recent of the studies (Wallmo and Lew, 2012) employed a stated preference method to estimate the value of recovering or down-listing eight ESA-listed marine species, including the North Atlantic right whale. Through a survey of 8,476 households, the authors estimated an average WTP (per household per year, for a 10-year period) of $71.62 for full recovery of the species and $38.79 for recovery sufficient to down-list the species from "endangered" to "threatened." While the other studies noted do not focus specifically on the North Atlantic populations of right, humpback, fin, or minke whales, they do demonstrate that individuals derive economic value from the protection of marine mammals.

Exhibit 10-8

STUDIES OF NON-USE VALUE ASSOCIATED WITH MARINE MAMMALS

Author	Title	Findings
Giraud et al. (2002)	Economic Benefit of the Protection of the Steller Sea Lion	Estimated WTP for an expanded Steller sea lion protection program. The average WTP for the entire nation amounted to roughly $61 per person.
Hageman (1985)	Valuing Marine Mammal Populations: Benefit Valuations in a Multi-Species Ecosystem	Per-household WTP for Gray and Blue Whales, Bottlenose Dolphins, California Sea Otters, and Northern Elephant Seals estimated to be $23.95, $17.73, $20.75, and $18.29 per year, respectively (1984 dollars).
Loomis and Larson (1994)	Total Economic Values of Increasing Gray Whale Populations: Results From a Contingent Valuation Survey of Visitors and Households	Mean WTP of U.S. households for an increase in gray whale populations estimated to be $16.18 for a 50 percent increase and $18.14 for a 100 percent increase.
Day (1985), cited in Rumage (1990)	The Economic Value of Whalewatching at Stellwagen Bank. The Resources and Uses of Stellwagen Bank	Non-use value of the presence of whales in the Massachusetts Bays system estimated to be $24 million.
Samples et al. (1986)	Information Disclosure and Endangered Species Valuation	Estimated individual WTP for protection of humpback whales of $39.62 per year.
Samples and Hoyller (1989)	Contingent Valuation of Wildlife Resources in the Presence of Substitutes and Complements	Respondents' average WTP (lump sum payment) to protect humpback whales in Hawaii ranged from $125 to $142 (1986 dollars).
Wallmo and Lew (2012)	Public Willingness to Pay for Recovering and Downlisting Threatened and Endangered Marine Species	Per-household mean WTP annually over 10 years for increase in North Atlantic right whale populations estimated to be $71.62 (for recovery) and $38.79 (for down-listing to threatened status) (2010 dollars).

[21] Non-use values such as those measured in these studies are closely related to "spiritual" or "ethical" values emphasized by some whale conservation advocates. These observers argue that whales deserve protection from human interference, and that such protection provides an intellectual or spiritual benefit to mankind.

10.6.2.3 Relative Ranking of Alternatives

As noted above, it is not feasible at present to estimate the economic benefits attributable to each of the regulatory alternatives that NMFS is considering. It is possible, however, to develop a relative ranking of the alternatives with respect to potential benefits, based on the estimated impact of each alternative on the potential for whales to become entangled in commercial fishing gear.

The biological impacts analysis presented in Chapter 5 relies primarily on NMFS' Vertical Line Model to examine how the regulatory alternatives might reduce the possibility of interactions between whales and fishing gear. As discussed in that chapter, the model integrates information on fishing activity, gear configurations, and whale sightings to provide indicators of the potential for entanglements to occur at various locations and at different points in time. The fundamental measure of entanglement potential is co-occurrence. The co-occurrence value estimated in the model is an index figure, integrated across the spatial grid, indicating the degree to which whales and the vertical line employed in gillnet or trap/pot fisheries coincide in the waters subject to the ALWTRP. Biological impacts are characterized with respect to the percentage reduction in the overall co-occurrence indicator each alternative would achieve.

Exhibit 10-9 summarizes the estimated change in co-occurrence under each action alternative relative to the no-action alternative (Alternative 1). Separate results are provided for Northeast waters and all ALWTRP waters coastwide. Alternative 2, which includes trawling requirements but no closures, is estimated to yield a reduction in co-occurrence of approximately 36 percent. Alternatives 3 through 6 (Preferred) add incrementally to this reduction through closure of high-risk areas at various times of year. The estimated impact of these closures is greater when affected vessels are assumed to suspend fishing rather than relocate to alternative fishing grounds. The greatest reduction in co-occurrence is achieved under Alternative 5, which includes modified trawling requirements as well as three closures (Jeffreys Ledge, Massachusetts Restricted Area #1, and Jordan Basin). Under this alternative, the estimated reduction in co-occurrence ranges from approximately 40 to 42 percent. Under Alternative 6 (Preferred), the estimated reduction in co-occurrence is approximately 38 percent in Northeast waters and 37 to 38 percent coastwide.

Exhibit 10-9

ANNUAL CHANGE IN CO-OCCURRENCE

Alternative	Percent Reduction in Co-Occurrence Score	
	Northeast Waters	Coastwide
Alternative 1 (No Action)	0.0%	0.0%
Alternative 2	-36.1%	-35.8%
Alternative 3 (100% Suspend)	-37.7%	-37.4%
Alternative 3 (Relocation)	-37.4%	-37.2%
Alternative 4 (100% Suspend)	-40.8%	-40.5%
Alternative 4 (Relocation)	-39.0%	-38.7%
Alternative 5 (100% Suspend)	-42.0%	-41.7%
Alternative 5 (Relocation)	-40.0%	-39.7%
Alternative 6 – Draft (100% Suspend)	-38.2%	-38.0%
Alternative 6 – Draft (Relocation)	-37.7%	-37.4%
Alternative 6 – Preferred (100% Suspend)	-38.2%	-37.9%
Alternative 6 – Preferred (Relocation)	-37.7%	-37.4%

10.6.3 Fishing Industry Compliance Costs

The costs attributable to the introduction of new regulations on the fisheries subject to the ALWTRP would be borne primarily by commercial fishermen, particularly those in the lobster fishery. This fishery includes thousands of licensed participants, none of whom account for a substantial share of the market. As a result, those in the harvest sector lack the ability to raise prices to cover any increase in their operating costs; the price they receive for their catch is dictated by market conditions, which can vary considerably from season to season. Thus, the costs of complying with new regulatory requirements are likely to be reflected in reductions in producer surplus in the harvest sector.[22]

The economic impact analysis developed for this EIS provides detailed estimates of the compliance costs associated with potential changes to the ALWTRP. The analysis estimates compliance costs for model vessels and extrapolates from these findings to estimate the overall cost to the commercial fishing industry of complying with the regulatory changes under consideration. The analysis measures the cost of complying with new requirements relative to the status quo – i.e., a baseline scenario that assumes no change in existing ALWTRP requirements. Thus, all estimates of compliance costs are incremental to those already incurred in complying with the ALWTRP. All costs are presented on an annualized basis and reported in 2011 dollars. The calculation of annualized costs is based on a real annual discount rate of seven percent, consistent with current OMB guidelines.

The discussion that follows summarizes the estimated cost of complying with each of the regulatory alternatives that NMFS is considering, including both the average cost for affected vessels and industry-wide compliance costs. Additional detail on the methods and results of the economic impact analysis can be found in Chapter 6.

10.6.3.1 Compliance Cost Estimation Methods

As discussed above, Alternatives 2 through 6 (Preferred) propose modifications to the ALWTRP that include some combination of gear configuration requirements, the seasonal closure of designated areas, and gear marking requirements. The methods employed to estimate the costs attributable to these requirements are described below.

Gear Configuration Requirements

A major component of Alternatives 2 through 6 (Preferred) is a minimum trawl length requirement – i.e., prohibiting trawls of less than a specified number of traps or pots – for

[22] As noted later in this chapter, the action alternatives under consideration could have a modest impact on the annual lobster catch. If this occurs, retail prices could rise, resulting in a reduction in consumer surplus. Such an increase in prices would, at least in theory, help to offset the costs that fishermen would incur in complying with new regulations. Whether this would in fact be the case depends on the extent to which an increase in prices at the retail level would translate to an increase in ex-vessel prices, or would instead be absorbed in higher profits elsewhere in the supply chain. Given these uncertainties, the analysis focuses on compliance costs in the harvest sector as a reasonable approximation of the social costs attributable to potential changes in ALWTRP requirements.

trap/pot fisheries in Northeast waters. The exact nature of this requirement varies by alternative and location. The costs that fishermen are likely to incur in complying with such requirements are primarily composed of *gear conversion* costs and *catch impacts*.

Vessels fishing shorter configurations (e.g., singles, doubles) would need to reconfigure their gear to comply with trawling requirements. These changes may require expenditures on new equipment as well as investments of fishermen's time. Analysis of the economic impact of the trawling requirements entails comparing the baseline configuration of gear assigned to model vessels in NMFS' Vertical Line Model with the minimum trawl length that would be required under each regulatory alternative. The analysis identifies instances in which the reconfiguration of gear would be required, estimates the material and labor necessary to bring all gear into compliance, and calculates the resulting cost. Equipment costs are a function of the quantity of gear to be converted and the unit cost of the materials needed to satisfy the trawling requirement. Labor costs are a function of the time required to implement a specific modification, the quantity of gear to be converted, and the implicit labor rate. All costs are calculated on an incremental basis, taking into account any savings in material or labor costs that might result from efforts to comply with new ALWTRP regulations.

In addition to the direct cost of gear conversion, catch rates may decline for vessels that are required to convert from shorter sets to longer trawls, reducing the revenues of affected operations. To estimate impacts in the lower bound, the analysis assumes that vessels implementing a major increase in trawl length (an increase of a factor of two or more in the number of traps in each set) would experience a five percent reduction in their annual catch. In the upper bound, the analysis assumes that these vessels would experience a ten percent reduction in catch, while all other vessels would experience a five percent reduction. The resulting impact on each vessel's annual revenues is based on prevailing ex-vessel prices for lobster or other trap/pot species.

Seasonal Closure Requirements

The analysis of the costs associated with the seasonal closure of designated areas begins by using the Vertical Line Model to estimate the number and type of vessels ordinarily active in each area during the proposed closure period. The remainder of the analysis is organized around two scenarios. In the upper bound, the analysis assumes that these vessels would remove all affected gear from the water for the duration of the closure. In this scenario, economic losses are estimated as the net loss in vessel revenue (i.e., the loss in gross revenue adjusted to take into account estimated savings in operating costs). In the lower bound, the analysis uses available data to identify alternative fishing grounds and the likely subset of vessels that would relocate their gear to alternative areas. In this scenario, estimates of economic losses are based on estimated changes in fuel use, time on the water, and catch per trap.

Gear Marking Requirements

Alternatives 2 through 6 (Preferred) specify revised gear marking requirements for vessels that are subject to the ALWTRP, including those in the lobster, OTP, blue crab, and gillnet fisheries. The requirements apply to all gear set in non-exempt waters. Under

Alternatives 2 through 6 (Draft), the new requirements would also apply to gear set in exempt areas of Maine and New Hampshire state waters. In contrast, under Alternative 6 (Preferred), gear set in Maine waters landward of the ALWTRP exemption line would remain exempt from gear marking requirements. For each alternative, the analysis of gear marking costs is based on the Vertical Line Model's estimates of the number of affected vessels and the number of vertical lines fished by those vessels (taking proposed trawling requirements into account). To model these costs, the analysis assumes that lines would be marked using gear marking whips woven into the line, each of which takes roughly five minutes to install. Annualized material and time costs are estimated for each model vessel, then extrapolated to the broader population of affected vessels.

10.6.3.2 Economic Impact Results

Of the fisheries subject to the requirements of the ALWTRP, the lobster fishery would bear the largest share of impacts from the regulatory alternatives under consideration. As Exhibit 10-10 shows, the lobster fishery accounts for the greatest number of vessels that would be required to reconfigure their gear to comply with trawling requirements. This is true across all action alternatives. In addition, the analysis indicates that the lobster fishery alone would be affected by the seasonal closure of fishing grounds. In contrast, all vessels fishing gear subject to ALWTRP requirements would be affected by the gear marking provisions. Under Alternatives 2 through 6 (Draft), this includes gear fished in Maine and New Hampshire waters that otherwise would be exempt from ALWTRP requirements. Alternative 6 (Preferred) would not require gear set in Maine's exempt waters to be marked; as a result, the number of vessels projected to be affected by this alternative (approximately 4,000) is substantially lower than the estimate provided for the other action alternatives (approximately 6,100).

Exhibit 10-10

NUMBER OF VESSELS AFFECTED BY NEW REQUIREMENTS, BY FISHERY

Regulatory Provisions	Regulatory Alternative	Fishery				Total
		Lobster Trap/Pot	Other Trap/Pot	Blue Crab	Gillnet	
Gear Configuration	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	1,679	139	0	0	1,817
	Alternative 3	1,256	136	0	0	1,392
	Alternative 4	1,695	139	0	0	1,834
	Alternative 5	1,263	136	0	0	1,400
	Alternative 6 (Draft)	1,228	136	0	0	1,364
	Alternative 6 (Preferred)	1,221	136	0	0	1,357
Closures	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	0	0	0	0	0
	Alternative 3	16	0	0	0	16
	Alternative 4	184	0	0	0	184
	Alternative 5	184	0	0	0	184
	Alternative 6 (Draft)	109	0	0	0	109
	Alternative 6 (Preferred)	109	0	0	0	109
Gear Marking	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	5,300	282	48	499	6,129
	Alternative 3	5,300	282	48	499	6,129
	Alternative 4	5,300	282	48	499	6,129
	Alternative 5	5,300	282	48	499	6,129
	Alternative 6 (Draft)	5,300	282	48	499	6,129
	Alternative 6 (Preferred)	3,186	274	48	498	4,006
All	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	5,300	282	48	499	6,129
	Alternative 3	5,300	282	48	499	6,129
	Alternative 4	5,300	282	48	499	6,129
	Alternative 5	5,300	282	48	499	6,129
	Alternative 6 (Draft)	5,300	282	48	499	6,129
	Alternative 6 (Preferred)	3,186	274	48	498	4,006

Note: Values may not sum to the totals shown due to rounding.

Exhibit 10-11 summarizes estimated compliance costs for each of the regulatory alternatives, breaking the results down by major regulatory component. Several findings are noteworthy:

- Of the action alternatives, estimated costs are lowest for Alternative 3. This alternative incorporates less stringent trawling requirements than specified under Alternative 2 and includes only the CCB Restricted Area closure, which affects relatively few vessels and poses limited costs.

- Alternative 4 is likely to pose the greatest costs. It includes three closures, all of which cover large areas. The estimated impact of the closures

specified under this alternative ranges from $1.3 million to $2.1 million per year.

- The cost of complying with Alternative 5 is likely to be somewhat less than that of complying with Alternative 4. The difference is attributable to a difference in trawling requirements, which are slightly less stringent under Alternative 5.

- In general, compliance with gear configuration requirements imposes the greatest costs, with estimates ranging as high as $4.4 million per year. The costs attributable to the seasonal closure of restricted areas also contribute substantially to the estimate of total compliance costs under Alternatives 4, 5, 6 (Draft), and 6 (Preferred). Gear marking requirements add approximately $1 million annually to the estimated cost of complying with most of the action alternatives.

- Gear marking costs are substantially lower under Alternative 6 (Preferred) because it does not require gear in Maine waters landward of the ALWTRP exemption line to be marked. In the lower bound scenario, this leads the estimate of total compliance costs for Alternative 6 (Preferred) to be lower than the corresponding figures for the other action alternatives. In the upper bound scenario, the overall estimate for Alternative 6 (Preferred) is slightly higher than that for Alternative 3, but lower than the estimates for the other action alternatives.

Research suggests that current practices are largely consistent with the gear configuration requirements proposed for Southeast trap/pot fisheries. Therefore, the cost of complying with them is unlikely to be substantial and these costs are not analyzed in detail.

Exhibit 10-11

ESTIMATE OF ANNUAL COMPLIANCE COSTS BY REGULATORY COMPONENT (2011 dollars)

Regulatory Alternative	Gear Configuration		Closures		Gear Marking	Total	
	Lower	Upper	Lower	Upper		Lower	Upper
Alternative 1 (No Action)	$0	$0	$0	$0	$0	$0	$0
Alternative 2	$1,241,000	$4,392,000	$0	$0	$1,014,000	$2,255,000	$5,407,000
Alternative 3	$1,003,000	$3,349,000	$21,000	$49,000	$1,047,000	$2,070,000	$4,445,000
Alternative 4	$1,213,000	$4,288,000	$1,340,000	$2,113,000	$1,010,000	$3,562,000	$7,411,000
Alternative 5	$996,000	$3,240,000	$1,340,000	$2,113,000	$1,043,000	$3,379,000	$6,396,000
Alternative 6 (Draft)	$1,009,000	$3,323,000	$557,000	$831,000	$1,054,000	$2,620,000	$5,208,000
Alternative 6 (Preferred)	$1,015,000	$3,316,000	$557,000	$831,000	$338,000	$1,910,000	$4,484,000

Note: Values may not sum to the totals shown due to rounding.

Exhibit 10-12 summarizes the estimate of annual compliance costs by regulatory alternative and fishery. Depending on the alternative and scenario (upper versus lower bound) in question, the analysis indicates that the lobster fishery would incur roughly 80 percent to 90 percent of estimated costs under Alternatives 2 through 6 (Preferred). OTP vessels would also incur a substantial share of costs under these alternatives, primarily because of the proposed minimum trawl-length requirements. The impact of the action alternatives on other fisheries is likely to be minor, reflecting the costs associated with meeting new gear marking requirements.

Exhibit 10-12

DISTRIBUTION OF ESTIMATED ANNUAL COMPLIANCE COSTS BY FISHERY
(2011 dollars)

Regulatory Alternative	Fishery						Total	
	Lobster Trap/Pot		Other Trap/Pot		Blue Crab	Gillnet		
	Lower	Upper	Lower	Upper			Lower	Upper
Alternative 1 (No Action)	$0	$0	$0	$0	$0	$0	$0	$0
Alternative 2	$1,814,000	$4,546,000	$430,000	$849,000	$7,000	$5,000	$2,255,000	$5,407,000
Alternative 3	$1,645,000	$3,600,000	$414,000	$833,000	$7,000	$5,000	$2,070,000	$4,445,000
Alternative 4	$3,121,000	$6,550,000	$430,000	$849,000	$7,000	$5,000	$3,562,000	$7,411,000
Alternative 5	$2,954,000	$5,551,000	$414,000	$833,000	$7,000	$5,000	$3,379,000	$6,396,000
Alternative 6 (Draft)	$2,192,000	$4,361,000	$416,000	$836,000	$7,000	$5,000	$2,620,000	$5,208,000
Alternative 6 (Preferred)	$1,482,000	$3,637,000	$416,000	$835,000	$7,000	$5,000	$1,910,000	$4,484,000

Note: Values may not sum to the totals shown due to rounding.

As noted above, the analysis suggests that the lobster fishery would bear the majority of the costs of complying with Alternatives 2 through 6 (Preferred). To provide additional context, Exhibit 10-13 presents the estimates of annual compliance costs for the lobster fishery as a percentage of ex-vessel revenues for the fishery in 2011; these revenues totaled approximately $423.8 million. As the exhibit indicates, the estimated impact ranges from 0.4 percent of revenue under Alternative 3 (lower bound scenario) to 1.5 percent of revenue under Alternative 4 (upper bound scenario). Under Alternative 6 (Preferred), the estimate of compliance costs ranges from 0.3 percent to 0.9 percent of 2011 revenue.

Exhibit 10-13

ESTIMATE OF ANNUAL COMPLIANCE COSTS FOR THE LOBSTER FISHERY AS A PERCENT OF 2011 EX-VESSEL REVENUES (2011 dollars)

Alternative	Annual Compliance Costs		Compliance Costs as a Percent of Revenue	
	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Alternative 1 (No Action)	$0	$0	0.0%	0.0%
Alternative 2	$1,814,000	$4,546,000	0.4%	1.1%
Alternative 3	$1,645,000	$3,600,000	0.4%	0.8%
Alternative 4	$3,121,000	$6,550,000	0.7%	1.5%
Alternative 5	$2,954,000	$5,551,000	0.7%	1.3%
Alternative 6 (Draft)	$2,192,000	$4,361,000	0.5%	1.0%
Alternative 6 (Preferred)	$1,482,000	$3,637,000	0.3%	0.9%

Other trap/pot vessels would also bear a substantial share of the costs of complying with Alternatives 2 through 6 (Preferred). This category, however, covers a range of disparate fisheries. As a result, a comparison of compliance costs to revenue for this category is more difficult to develop and potentially less meaningful. Rather than present such a comparison, the analysis relies on a more detailed examination of the impact of the alternatives relative to estimated revenues for groups of vessels that would be most heavily affected by the introduction of new regulations. This examination is incorporated into the analysis of the social impacts of the alternatives, which is summarized below.

10.7 SOCIAL IMPACTS OF ALTERNATIVES

The analysis of social impacts considers how compliance with the regulatory alternatives could affect the socioeconomic viability of fishing and fishermen's quality of life. The method and results described here are presented in greater detail in Chapter 7.

10.7.1 Potentially Affected Communities

The social impact analysis first uses county-level data on affected fishing vessels to identify the communities at greatest risk of experiencing adverse social impacts stemming from the ALWTRP modifications under consideration. The analysis uses additional county-level socioeconomic data to characterize key features of the at-risk communities, examining economic, demographic, and social features that may influence the impact of the regulations on the region.

Communities in mid-coast and Downeast Maine are the most vulnerable to adverse social impacts as a result of changes to the ALWTRP. Washington, Hancock, and Knox counties in particular are highly exposed to the effects of regulation due to the importance of the lobster fishery to these communities. The value of ALWTRP-affected landings in these communities is substantial, and the highest of all affected communities. Additionally, the total number of

affected vessels in these three counties is higher than in any other county in the affected region. These communities are also highly sensitive to the proposed regulations, as evidenced by their substantial social, cultural, and economic dependence upon fishing. The rural nature of the economy in these counties, coupled with high unemployment and poverty rates, suggest that they may have a relatively low capacity to adapt to economic impacts induced by new ALWTRP regulations.

More than 50 percent of ex-vessel revenues in Maine's other coastal counties is attributable to landings made with ALWTRP gear. In some instances, however, such as Waldo County, the overall value of these landings is relatively low. In others, such as Lincoln, Sagadahoc, Cumberland, and York, the value of potentially affected landings is substantial, but the economy as a whole is more diversified. As a result, these counties are somewhat less sensitive to adverse impacts that may stem from changes in ALWTRP regulations. The same is true of New Hampshire's Rockingham County. There, 85 percent of ex-vessel revenues are derived from landings made with ALWTRP gear, which suggests that the county's harvesting sector is highly exposed. The sensitivity of the county's economy as a whole, however, is tempered by a relatively high degree of diversification. In addition, Rockingham County's unemployment rate is the lowest reported among the counties analyzed; this suggests that its economy has a relatively strong capacity to respond to change, and that the region is less vulnerable to adverse impacts than areas where unemployment is higher.

In Massachusetts and Rhode Island, the situation is more varied. In general, the value of landings made with ALWTRP gear in the counties of these states is lower than that reported for counties in Maine and New Hampshire, both on an absolute and a relative basis. In addition, the economies of the counties in Massachusetts and Rhode Island tend to be more diversified and less dependent on the commercial fishing sector. Nonetheless, ALWTRP gear accounts for ex-vessel revenues of more than $15 million per year in Essex (MA), Barnstable (MA), and Bristol (MA) counties, suggesting that exposure to adverse impacts in these counties may be substantial. Dependence on commercial fishing is moderate in Essex and Bristol counties, but is high in Barnstable County. With an unemployment rate that exceeds 10 percent, Barnstable County may be particularly vulnerable to adverse impacts stemming from the introduction of new ALWTRP regulations.

10.7.2 Comparison of Vessel Compliance Costs to Ex-Vessel Revenues

To identify potentially hard-hit sectors of the commercial fishing industry, the analysis compares estimates of average vessel compliance costs to estimates of average gross revenue per vessel. There is no clearly-defined threshold at which annualized costs represent a large enough percent of annual revenues that a vessel operator would cease fishing, or would otherwise suffer social and economic hardship. For purposes of discussion, however, the analysis highlights two impact categories, which are consistent with those employed in previous analyses of the impacts of new ALWTRP regulations:[23]

[23] See National Marine Fisheries Service, *Final Environmental Impact Statement for Amending the Atlantic Large Whale Take Reduction Plan: Broad-Based Gear Modifications*, August 2007.

- **Heavily-Affected Vessels –** Segments of a fishery for which the estimated upper bound compliance costs exceed 15 percent of annual revenues.

- **At-Risk Vessels –** Segments of a fishery for which estimated compliance costs range between 5 and 15 percent of annual revenues.

The number of vessels identified as heavily affected ranges from zero under Alternatives 2 and 3 to 163 under Alternatives 4 and 5 (see Exhibit 10-14). For the latter two alternatives, the vessels in the heavily affected category are lobster vessels that would be displaced either by the closure of Jeffreys Ledge or the closure of Massachusetts Restricted Area #1. In contrast, under Alternatives 6 (Draft) and 6 (Preferred), the analysis identifies 90 vessels as heavily affected; this group consists of lobster vessels that would be displaced by the closure of Massachusetts Restricted Area #2.

10.7.3 Other Socioeconomic Impacts

As Exhibit 10-14 indicates, the regulatory alternatives under consideration could generate additional socioeconomic impacts beyond the direct effect of compliance costs on vessel operation. For example:

- To the extent that compliance reduces lobster landings, the dealer and processing sectors of the economy could be affected. The estimated reduction in landings of lobster is greatest under Alternative 4 (2.1 million pounds per year) and smallest under Alternative 3 (1.0 million pounds per year). Even in the case of Alternative 4, however, the estimated effect on landings is less than two percent of total landings in 2011. Because the reduction is substantially less than the annual fluctuation in total landings in recent years, adverse impacts on the dealer and processing sectors under any of the alternatives are unlikely to be substantial.

- Competition for fishing grounds may increase if changes to the ALWTRP include the seasonal closure of certain fishing grounds. Most notably, fishermen who would otherwise fish in the closed area may relocate their effort to new grounds, increasing competition in those areas. Competition for fishing grounds may also increase to the extent that fishermen relocate from their traditional fishing grounds to exempted waters or waters that are subject to more moderate regulation.

Exhibit 10-14

SUMMARY OF SOCIOECONOMIC IMPACTS BY ALTERNATIVE

Parameter	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 6 (Preferred)
Number of Heavily Affected Vessels (Upper Bound Scenario)	0	0	0	163	163	90	90
Total Employment on Heavily Affected Vessels (Upper Bound Scenario)	NA	NA	NA	330	330	179	179
Anticipated Reduction in Lobster Landings (Upper Bound Scenario)	0	1,283,000 lbs.	997,000 lbs.	2,112,000 lbs.	1,807,000 lbs.	1,235,000 lbs.	1,231,000 lbs.
Impacts on Dealers	No change	Minor short-term supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible
Impacts on Processors	No change	Minor short-term supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible
Other Potential Negative Social Impacts	No change	Minor	Some potential for increased congestion and gear conflict	Greater potential for increased congestion and gear conflict	Greater potential for increased congestion and gear conflict	Moderate potential for increased congestion and gear conflict	Moderate potential for increased congestion and gear conflict
Positive Social Impacts (Reduction in Baseline Co-occurrence Score, Upper Bound Scenario)	No change (0.0 percent change in baseline co-occurrence score)	Public welfare benefits of increased whale protection (36.1 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (37.7 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (40.8 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (42.0 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (38.2 percent reduction in baseline co-occurrence score)	Public welfare benefits of increased whale protection (38.2 percent reduction in baseline co-occurrence score)

- Increased congestion in certain areas may increase the incidence of gear conflicts. Gear conflicts may also arise because of ALWTRP regulations that require fishermen in some cases to use trawls with a single endline, which prevents other fishermen from visually determining the direction in which a trawl or string is set.

- Minimum trawl-length requirements implemented under the ALWTRP may pose safety issues for fishermen. Some industry representatives have suggested that hauling or setting trawls from a small vessel can be dangerous due to the increased quantity of groundline lying on and deploying from a crowded deck, increasing the risk of a crew member becoming entangled and possibly pulled overboard. Furthermore, sources suggest that hauling gear with sinking groundline may pose a danger when fishermen attempt to free fouled line from a snag on bottom structure – an occurrence that could become more common with the introduction of minimum trawl-length requirements.

- Some small vessels may find it infeasible to comply with minimum trawl-length requirements due to limitations on deck space and related issues. To the extent that smaller vessels have difficulty competing, trends toward consolidation and increased corporate ownership of fishing vessels may be reinforced.

Because new gear configuration requirements under Alternatives 2 through 6 (Preferred) would affect roughly the same number of vessels, the impacts related to such requirements under each of these alternatives is likely to be similar. The potential for increased crowding, competition and gear conflicts, however, is greatest under Alternatives 4 and 5, which include the most extensive seasonal area closures.

The public welfare benefits associated with increased whale protection are likely to be similar across all action alternatives. As noted, the analysis measures the change in whale protection offered by a given alternative as a change in the co-occurrence of whales and vertical lines. By this measure, Alternative 5 offers the greatest protection to whales, with a reduction in co-occurrence (upper bound scenario) of 42 percent. Alternative 2 offers the least benefit, with a reduction in co-occurrence (upper bound scenario) of 36 percent. These biological benefits have socioeconomic implications for the general public. An increase in the abundance of whales would have a positive impact on the consumer surplus derived from whale watching (a use benefit) and may increase producer surplus for operators of whale watch vessels. Likewise, whale conservation may enhance intrinsic values that society holds for healthy, flourishing whale populations.

10.8 INTEGRATION OF RESULTS

As previously noted, the inability to quantify and value the benefits of potential changes to the ALWTRP prohibits the use of BCA to identify the regulatory alternative that would provide the greatest net benefit. Instead, Exhibit 10-15 summarizes the estimated cost of

complying with each regulatory alternative, coupled with the estimated impact of each alternative on the Vertical Line Model's co-occurrence indicator. It also presents estimates of the cost-effectiveness of each alternative in reducing co-occurrence, both in the aggregate and for its major components (i.e., gear marking, gear reconfiguration, and seasonal area closures). Because the alternatives vary with respect to the reduction in co-occurrence they achieve, it is not possible to identify a superior option based on cost-effectiveness alone.[24] Nonetheless, the cost-effectiveness figures provide a useful means of comparing the relative impacts of the regulatory provisions that each alternative incorporates. The exhibit reveals several noteworthy findings:

- The minimum trawl-length requirements yield the greatest reduction in co-occurrence for the associated compliance cost. In contrast, closures are less cost-effective, as evidenced by their greater cost per unit reduction in co-occurrence.

- Alternative 3 is cost-effective relative to most of the other alternatives ($56,000 to $119,000 per unit of co-occurrence reduction). This is in part because the costs attributed to the seasonal closure of the Cape Cod Bay Restricted Area are relatively low. In addition, this alternative includes modifications to the gear reconfiguration requirements specified in Alternative 2 that are estimated to have a greater impact on co-occurrence at a lower total cost.

- The cost-effectiveness estimates for the remaining closures – Jeffreys Ledge, Jordan Basin, Massachusetts Restricted Area #1, and Massachusetts Restricted Area #2 – range from $194,000 to $573,000 per unit of co-occurrence reduction.

- Overall, the least cost-effective alternative is Alternative 4. It includes the same gear reconfiguration requirements specified under Alternative 2, plus three closures with relatively high costs per unit of co-occurrence reduction. Alternative 5 appears to be superior to Alternative 4, achieving a greater estimated impact on co-occurrence at a lower total cost.

- Alternative 6 (Preferred) is the most cost-effective of the alternatives ($51,000 to $118,000 per unit of co-occurrence reduction). It eliminates gear marking requirements for vessels in Maine exempt waters, lowering costs without affecting the estimated co-occurrence reductions. Like Alternative 6 (Draft), it includes only one closure (Massachusetts Restricted Area #2), further improving overall cost-effectiveness relative to alternatives that include more extensive closures.

[24] OMB, 2003.

Exhibit 10-15

COST-EFFECTIVENESS OF ALTERNATIVES

Alternative	Regulatory Component	Lower Bound Scenario			Upper Bound Scenario		
		Cost	Co-Occurrence Benefit	Cost per Unit of Co-Occurrence Reduction	Cost	Co-Occurrence Benefit	Cost per Unit of Co-Occurrence Reduction
1	NA	$0	0.0%	NA	$0	0.0%	NA
2	Gear Marking	$1,014,000	0.0%		$1,014,000	0.0%	
	Gear Reconfiguration	$1,241,000	35.8%	$34,625	$4,392,000	35.8%	$122,540
	Total	$2,255,000	35.8%	$62,916	$5,407,000	35.8%	$150,859
3	Gear Marking	$1,047,000	0.0%		$1,047,000	0.0%	
	Gear Reconfiguration	$1,003,000	37.0%	$27,096	$3,349,000	37.0%	$90,474
	CCB CH	$21,000	0.2%	$137,538	$49,156	0.4%	$124,059
	Total	$2,070,000	37.2%	$55,692	$4,445,000	37.4%	$118,811
4	Gear Marking	$1,010,000	0.0%		$1,010,000	0.0%	
	Gear Reconfiguration	$1,213,000	35.8%	$33,844	$4,288,000	35.8%	$119,638
	Jordan	$43,000	0.2%	$194,464	$103,000	0.5%	$226,983
	MRA #1	$553,000	1.3%	$435,448	$839,000	1.8%	$470,735
	Jeffreys	$743,000	1.4%	$547,456	$1,172,000	2.5%	$475,733
	Total	$3,562,000	38.7%	$92,066	$7,411,000	40.5%	$182,802
5	Gear Marking	$1,043,000	0.0%		$1,043,000	0.0%	
	Gear Reconfiguration	$996,000	37.0%	$26,907	$3,240,000	37.0%	$87,529
	Jordan	$43,000	0.2%	$274,178	$103,000	0.3%	$296,740
	MRA #1	$553,000	1.3%	$435,404	$839,000	1.8%	$470,701
	Jeffreys	$743,000	1.3%	$573,414	$1,172,000	2.5%	$464,491
	Total	$3,379,000	39.7%	$85,030	$6,396,000	41.7%	$153,495
6 (Draft)	Gear Marking	$1,054,000	0.0%		$338,000	0.0%	
	Gear Reconfiguration	$1,009,000	36.2%	$27,879	$3,316,000	36.2%	$91,622
	MRA #2	$557,000	1.2%	$447,644	$831,000	1.8%	$471,979
	Total	$2,620,000	37.4%	$69,985	$5,208,000	38.0%	$137,222
6 (Preferred)	Gear Marking	$338,000	0.0%		$338,000	0.0%	
	Gear Reconfiguration	$1,015,000	36.2%	$28,057	$3,316,000	36.2%	$91,661
	MRA #2	$557,000	1.2%	$447,644	$831,000	1.8%	$471,979
	Total	$1,910,000	37.4%	$51,041	$4,484,000	37.9%	$118,195

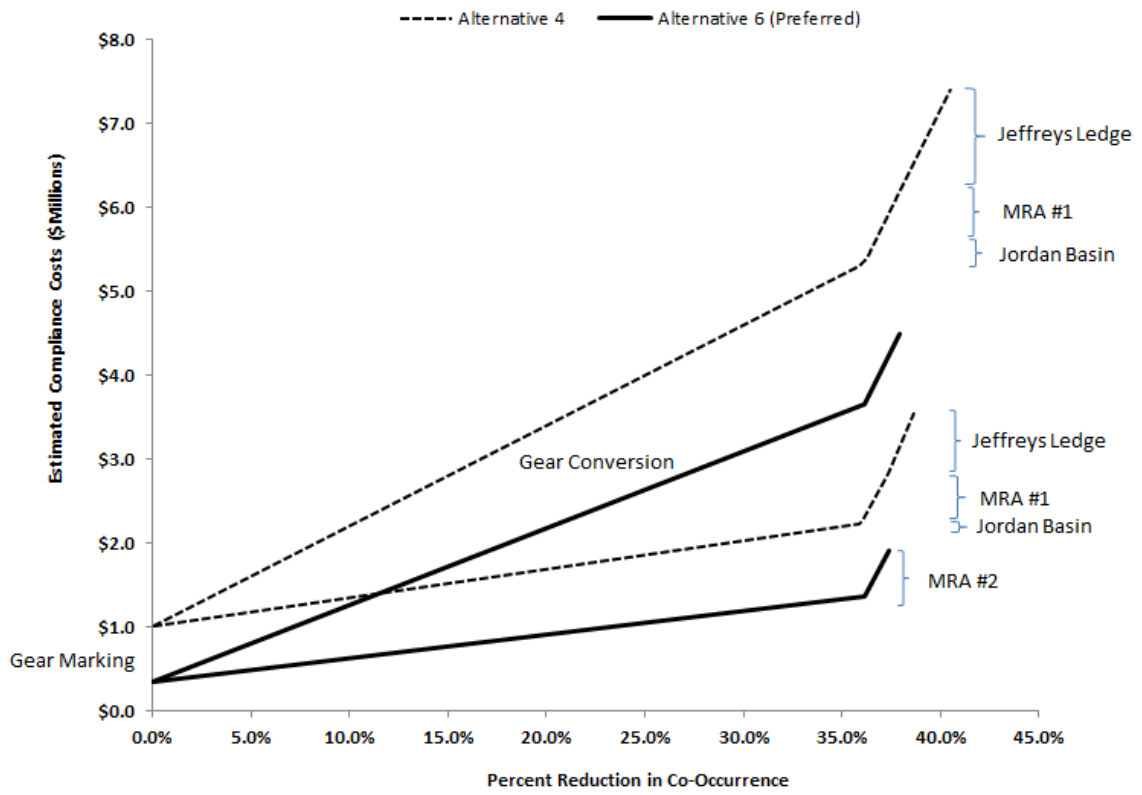
Notes:
- By improving understanding of the nature of entanglements, gear marking requirements could in the long-term have a beneficial impact on the cost-effectiveness of regulations specified under the ALWTRP; however, they would have no direct or immediate impact on the co-occurrence indicator.
- Values may not sum to the totals shown due to rounding.

Exhibit 10-16 further illustrates these findings, using cost-effectiveness curves to compare the impacts of Alternative 6 (Preferred) to those of Alternative 4, the least cost-effective of the alternatives analyzed. The exhibit displays co-occurrence reduction on the horizontal axis and compliance costs on the vertical axis for both the upper and lower bound scenarios for each

alternative. The segments of each curve show the marginal impacts of the two alternatives' major regulatory provisions. As the exhibit shows, gear-marking costs under Alternative 6 (Preferred) are estimated to be approximately one-third of those under Alternative 4, reflecting the exemption from gear-marking requirements the preferred alternative provides for gear in Maine's exempt waters. This shifts the cost-effectiveness curves for Alternative 6 (Preferred) downward from those for Alternative 4, as reflected in the lower y-intercept. The marginal impacts of the two alternatives' gear reconfiguration provisions are similar, although these impacts are estimated to be slightly more effective and less costly under Alternative 6 (Preferred). In contrast, the provisions for seasonal area closures under Alternative 4 are more extensive than those under Alternative 6 (Preferred), yielding a greater reduction in co-occurrence scores. The benefits associated with these closures, however, come at a relatively high cost, as reflected in the steeper slope of the segments of the cost-effectiveness curves that represent these impacts.

Exhibit 10-16

COST-EFFECTIVENESS CURVES FOR ALTERNATIVE 5: LOWER AND UPPER BOUND COMPLIANCE SCENARIOS



NMFS has considered the benefit and cost information presented above and believes that Alternative 6 (Preferred) offers the best option for achieving compliance with MMPA and ESA requirements. By excluding vessels in Maine exempt waters from gear marking requirements, Alternative 6 (Preferred) reduces compliance costs with no direct or immediate effect on the estimated reduction in co-occurrence. In addition, Alternative 6 (Preferred) provides most of the benefits that would be achieved under more stringent alternatives, sacrificing only the relatively costly additional reduction in co-occurrence that would be achieved by the closure of Jeffreys Ledge, Jordan Basin, and Massachusetts Restricted Area #1. Based on these considerations, NMFS has identified Alternative 6 (Preferred) as its proposed approach to achieving the goals of the ALWTRP.

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FINAL REGULATORY FLEXIBILITY ANALYSIS CHAPTER 11

11.1 INTRODUCTION

The Regulatory Flexibility Act (RFA) requires Federal regulatory agencies to examine the impacts of proposed and existing rules on small businesses, small organizations, and small governmental jurisdictions. The RFA requires that agencies develop an Initial Regulatory Flexibility Analysis (IRFA) and a Final Regulatory Flexibility Analysis (FRFA). These analyses evaluate the impact that the regulatory alternatives under consideration would have on small entities and examine ways to minimize these impacts. Although the RFA does not require that the alternative with the least impact on small entities be selected, it does require that the expected impacts be adequately characterized.

In accordance with the RFA, this FRFA evaluates the modifications to the Atlantic Large Whale Take Reduction Plan (ALWTRP) that the National Marine Fisheries Service (NMFS) is considering. The FRFA addresses the following issues:

- The objectives and legal basis of the proposal to revise the ALWTRP;
- The problem addressed by the ALWTRP;
- The provisions included in the regulatory alternatives under consideration, and how NMFS considered public comment in reducing the preferred alternative's impact on small entities;
- The small entities potentially affected by the ALWTRP;
- The impacts of the proposed rules on small entities; and
- Rules that may duplicate, overlap, or conflict with the proposed rule.

11.2 OBJECTIVES AND LEGAL BASIS OF PROPOSED RULES

The revisions to the ALWTRP that NMFS is considering are designed to improve the effectiveness of commercial fishing regulations implemented to conserve and protect three endangered species – North Atlantic right whales (*Eubalaena glacialis*), North Atlantic humpback whales (*Megaptera novaeangliae*), and fin whales (*Balaenoptera physalus*) – thereby

fulfilling NMFS' obligations under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). The need for the proposed revisions is demonstrated by the continuing risk of serious injury and mortality of Atlantic large whales due to entanglement in commercial fishing gear.

The MMPA of 1972 provides protection for species or stocks that are, or may be, in danger of extinction or depletion as a result of human activity. The MMPA states that measures should be taken immediately to replenish the population of any marine mammal species or stock that has diminished below its optimum sustainable level. With respect to any stock or species, the "optimum sustainable population" is the number of animals that will result in the maximum productivity of the stock or species, taking into account the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element.

Under the MMPA, the Secretary of Commerce is responsible for the conservation and management of pinnipeds (other than walruses) and cetaceans (including whales). The Secretary of Commerce has delegated MMPA authority to NMFS.

In 1994, Congress amended the MMPA, establishing new provisions to govern the taking of marine mammals incidental to commercial fishing operations.[1] These new provisions include the preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction, and development and implementation of take reduction plans for stocks that may be reduced or are being maintained below their optimum sustainable population due to interactions with commercial fisheries.

Take reduction plans are required for all "strategic stocks." Under the MMPA, a "strategic stock" is a stock: (1) for which the level of direct human-caused mortality exceeds the Potential Biological Removal (PBR) level; (2) that is declining and is likely to be listed under the ESA in the foreseeable future; or (3) that is listed as a threatened or endangered species under the ESA or as a depleted species under the MMPA.[2] The immediate goal of a take reduction plan is to reduce, within six months of its implementation, the mortality and serious injury of strategic stocks incidentally taken in the course of U.S. commercial fishing operations to below the PBR levels established for such stocks. The long-term goal of a take reduction plan is to reduce, within five years of its implementation, the incidental mortality and serious injury of strategic marine mammals taken in the course of commercial fishing operations to insignificant levels approaching a zero mortality and serious injury rate, taking into account the economics of the fishery, the availability of existing technology, and existing state or regional fishery management plans.

Right whales, humpback whales, and fin whales are listed as endangered species under the ESA, and are thus considered strategic stocks under the MMPA. Pursuant to its obligations

[1] As defined in the MMPA, the term "take" means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.

[2] The Potential Biological Removal (PBR) level is defined in the MMPA as the maximum number of animals, not including natural mortalities, which may be removed from a marine mammal stock annually while allowing that stock to reach or maintain its optimum sustainable population. Procedures for calculating the PBR level are described in the MMPA.

under the MMPA, NMFS in 1996 established the Atlantic Large Whale Take Reduction Team (ALWTRT), an advisory group empaneled to develop recommendations for reducing the incidental take of large whales in commercial fisheries along the Atlantic Coast. The ALWTRT includes representatives of the fishing industry, state and Federal resource management agencies, the scientific community, and conservation organizations. The purpose of the ALWTRT is to provide guidance to NMFS in developing and amending the ALWTRP to meet the goals of the MMPA with respect to Atlantic large whales.

In addition to the MMPA, the ESA provides a legal foundation for measures to protect right whales, humpback whales, and fin whales. The ESA provides for the conservation of species that are in danger of extinction throughout all or a significant portion of their range, as well as the conservation of the ecosystems on which these species depend.[3] The right whale, humpback whale, and fin whale species are all federally-listed as endangered and are therefore subject to protection under the ESA.

Section 7 of the ESA directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and to ensure that their actions do not jeopardize listed species or destroy or adversely modify the critical habitat of those species. When a proposed Federal action may affect an ESA-listed marine species, Section 7 directs that the "Action agency" consult with the Secretary of Commerce; this is referred to as a Section 7 consultation.[4,5]

To assess impacts on large whale and sea turtle species protected under the ESA, NMFS has prepared Biological Opinions for the continued authorization of Federal fisheries under the Fishery Management Plans (FMPs) for the multispecies, spiny dogfish, and monkfish fisheries, and under Federal regulations for the lobster fishery, amongst others. Section 7 consultations were first initiated for each of these fisheries either at the time the FMP was developed or, in the case of lobster, when a significant amendment (Amendment 5) to the Federal Lobster Management Plan was under consideration. The Northeast multispecies fishery has a long consultation history, including formal and informal Section 7 consultations, beginning with a formal consultation initiated on June 12, 1986. Formal consultation was first initiated for spiny dogfish on August 13, 1999; for monkfish on December 21, 1998; and for lobster on March 23, 1994. Subsequent ESA Section 7 consultations on those fisheries incorporated the ALWTRP as a Reasonable and Prudent Alternative (RPA) to avoid jeopardy to right whales. NMFS reinitiated consultation on May 4, 2000, for the multispecies, spiny dogfish and monkfish gillnet fisheries, and on June 22, 2000, for the lobster fishery, following new whale entanglements resulting in serious injuries to right whales, at least one right whale mortality in gillnet gear, new information

[3] "Species," as defined by the ESA, includes any subspecies of fish, wildlife, or plant and any distinct population segment of any vertebrate species which interbreeds when mature.

[4] The "Action agency" is the Federal agency charged with permitting, conducting or funding the proposed activity serving as the basis for the consultation.

[5] Federal agencies must consult with the Secretary of the Interior when a proposed action may affect an ESA-listed species under the Department of Interior's purview.

indicating a declining status for western North Atlantic right whales, and revisions to the ALWTRP.

The Biological Opinions from the May/June 2000 Section 7 consultations, finalized June 14, 2001, found that NMFS' authorization of these Federal fisheries, as modified by the ALWTRP requirements in effect at that time, was likely to jeopardize the continued existence of the western North Atlantic right whale. The Biological Opinions identified a set of Reasonable and Prudent Alternatives designed to avoid the likelihood of jeopardy to right whales. These measures included:

- Seasonal Area Management (SAM);
- Dynamic Area Management (DAM);
- An expansion of gillnet gear modification requirements and restrictions to Mid-Atlantic waters and modification of fishing practices in Southeastern waters;
- Continued gear research and modifications; and
- Additional measures that implement and monitor the effectiveness of the RPAs.

These measures were intended, in combination, to reduce the risk of serious injury or mortality of large whales from entanglements in commercial fishing gear, and to minimize adverse impacts if entanglements occur.

Following implementation of the measures described above, entanglements leading to serious injury or death of protected whales, including the North Atlantic right whale, continued to occur. Accordingly, NMFS reinitiated consultation on the continued authorization of a number of fisheries and began to develop modifications to the ALWTRP. At its 2003 meeting, the ALWTRT agreed to manage entanglement risks by focusing first on reducing the risk associated with groundlines, then reducing the risk associated with vertical lines. In October 2007, NMFS issued a final rule that replaced the SAM and DAM programs with broad-based gear modification requirements, including the use of sinking groundline; expanded weak link requirements; additional gear marking requirements; changes in boundaries; seasonal restrictions for gear modifications; expanded exempted areas; and changes in regulatory language for the purposes of clarification and consistency (72 FR 57104, October 5, 2007). The broad-based sinking groundline requirement became fully effective on April 5, 2009. This final rule also incorporated an amendment to the ALWTRP (72 FR 34632, June 25, 2007) that implemented, with revisions, previous ALWTRP regulations by expanding the Southeast U.S. Restricted Area to include waters within 35 nm (64.82 km) of the South Carolina coast, dividing the Southeast U.S. Restricted Area into Southeast U.S. Restricted Areas North and South, and modified regulations pertaining to gillnetting within the Southeast U.S. Restricted Area.

Following implementation of these measures, NMFS and the ALWTRT turned their collective focus to vertical line risk reduction. At the 2009 ALWTRT meeting, the Team agreed

on a schedule to develop a management approach to reduce the risk of serious injury and mortality due to vertical line. As a result of this schedule, NMFS committed to publishing a final rule to address vertical line entanglement by 2014. NMFS also reinitiated consultation on continued authorization of FMPs for a number of fisheries (American lobster; bluefish; spiny dogfish; monkfish; Northeast multispecies; skate; Atlantic mackerel, squid, and butterfish; and summer flounder, scup and Northern black sea bass). These consultations concluded in October 2010. After identifying the steps being taken by NMFS to develop, analyze and implement a vertical line reduction rule, the agency's Biological Opinions concluded that continued operation of the fisheries noted above would be likely to adversely affect, but not jeopardize, the continued existence of right, humpback, and fin whales.

11.3 PROBLEM ADDRESSED BY ALWTRP

Right whales, humpback whales, and fin whales are listed as endangered species under the ESA, and are thus considered strategic stocks under the MMPA. The measures that the ALWTRP requires focus on the conservation of these species, and also benefit minke whales. The current status of these species is summarized below:

- **Right Whale:** The western North Atlantic right whale (*Eubalaena glacialis*) is one of the rarest of all large cetaceans. It is among the most endangered species in the world and is listed as endangered under the ESA. NMFS considers the best estimate of the population of North Atlantic right whales to be approximately 444, well below the optimum sustainable population (OSP).[6] PBR for this species is currently 0.9 whales per year (Waring et al., 2013).

- **Humpback Whale:** The North Atlantic humpback whale (*Megaptera novaeangliae*) is listed as an endangered species under the ESA. For the Gulf of Maine stock of humpback whales, NMFS estimates a minimum population of 823. PBR for this stock is currently 2.7 whales per year (Waring et al., 2013).

- **Fin Whale:** The fin whale (*Balaenoptera physalus*) is listed as an endangered species under the ESA. Although researchers debate the existence of several distinct subpopulations of this species, NMFS currently treats all fin whales within U.S. waters of the North Atlantic as members of a single population, with an estimated minimum size of 2,817. PBR for this species is currently 5.6 whales per year (Waring et al., 2013).

- **Minke Whale:** The minke whale (*Balaenoptera acutorostrata*) is not listed as endangered or threatened under the ESA. Minke whales in U.S. waters of the North Atlantic are considered part of the Canadian east coast

[6] The optimum sustainable population of any stock or species is defined as the number of animals that will result in the maximum productivity of the stock or species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element (16 USC 1362(9)).

> stock of this species. NMFS estimates a minimum population for this stock of 16,199; PBR is currently 162 whales per year (Waring et al., 2013).

Atlantic large whales are at risk of becoming entangled in fishing gear because the whales feed, travel and breed in many of the same ocean areas utilized for commercial fishing. Fishermen typically leave fishing gear such as gillnets and traps/pots in the water for a discrete period, after which time the nets/traps/pots are hauled and their catch retrieved. While the gear is in the water, whales may become entangled in the lines and nets that comprise trap/pot and gillnet fishing gear. The effects of entanglement can range from no permanent injury to death.

A scarification analysis conducted by the New England Aquarium (Knowlton et al., 2002) found that juvenile right whales are entangled with greater frequency than adults. Juvenile animals may not have sufficient strength to break free from entangling lines, which can lead to serious injury and infection resulting from the animal "growing into" the lines.

A study of right whale and humpback whale entanglements (Johnson et al., 2005) found that in cases where the point of gear attachment was known, right whale entanglements frequently (77.4 percent; 24 of 31 entanglement events) involved the mouth, which may indicate that many entanglements occur while whales are feeding. The study also found that humpback whales are more commonly reported with entanglements in the tail region (53.0 percent; 16 of 30 entanglement events), in cases where the point of attachment was known.[7] The number of entanglements for which gear type can be identified is too small to detect any trends in the type of gear involved in lethal entanglements. Trap/pot and gillnet gear, however, seem to be the most common, as in 89 percent of the cases the gear was identified as or consistent with trap/pot or gillnet gear (Johnson et al., 2005).[8] The study confirmed that vertical lines and floating groundlines posed risks for large whales; however, the authors concluded that any type and part of fixed gear is capable of entangling a whale, and several body parts of the whale can be involved.

Exhibit 11-1 summarizes all known serious injury entanglements of right, humpback, fin, and minke whales from 1997 through 2010, the most recent year that data is available for all species. Humpback whales account for the greatest number of serious injury entanglements (35), followed by right whales (11); minke whales account for five, and fin whales account for four.

[7] In some cases, other parts of the body in addition to the tail may have been entangled.

[8] According to Johnson et al. (2005), analyses focused on entanglements from which the gear was examined by NMFS gear specialists, as well as other sources considered reliable, but also included entanglements for which the gear type and/or part was identified (e.g., by a fisherman or biologist) but not recovered. In some cases, recovered gear can definitively be traced back to a particular fishery, but in other cases, certain parts of the gear may be recovered that could be considered consistent with gear that is used in a particular fishery. For example, the gear recovered from right whale #3107 consisted of line with a 600-pound weak link, and thus was considered consistent with gear used in the lobster trap/pot fishery. Note that Johnson et al. (2005) have classified this whale's entanglement as lobster trap/pot gear that was set in an unknown location.

Exhibit 11-1

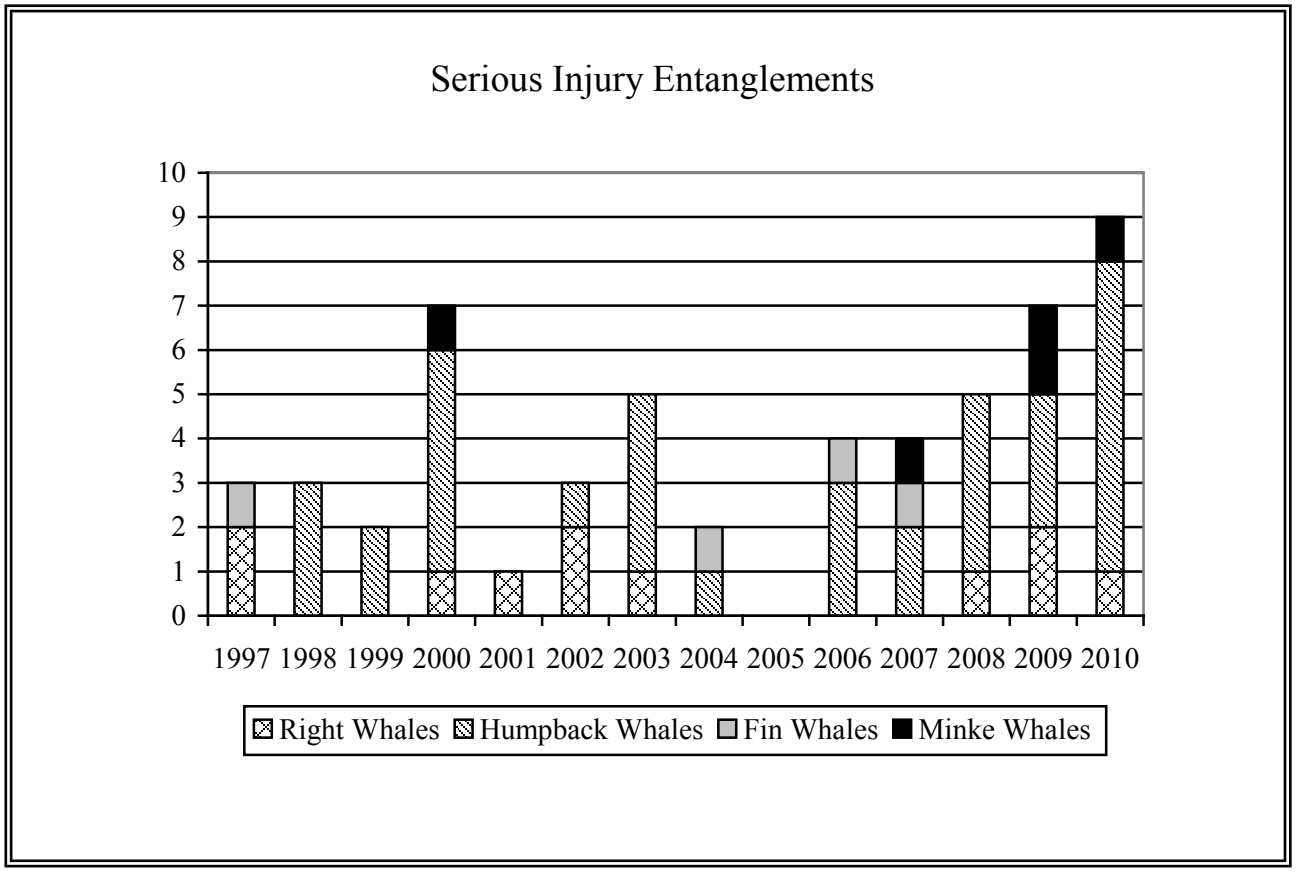
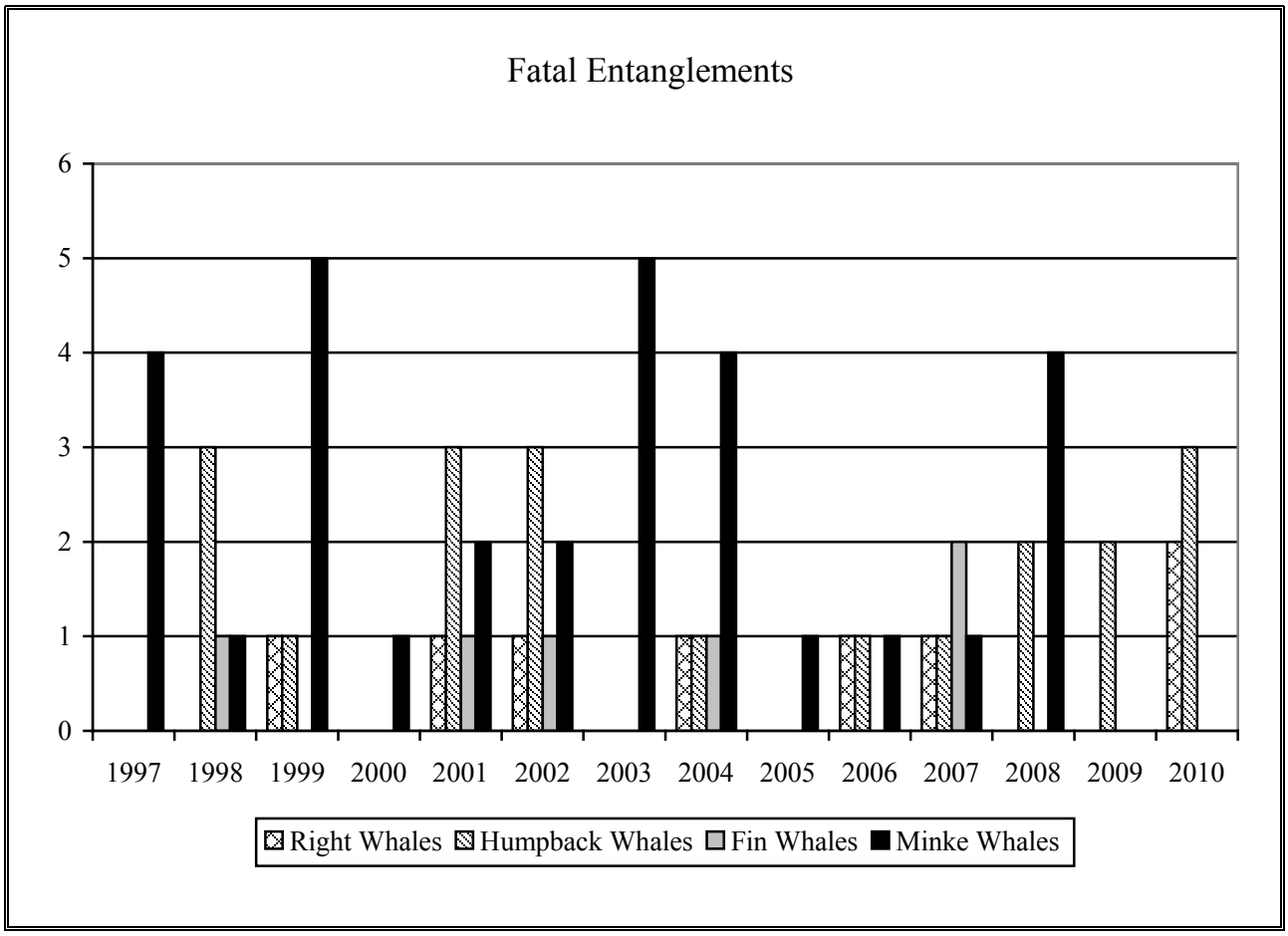


Exhibit 11-2 presents available data on fatal entanglements of Atlantic large whales from 1997 through 2010, the most recent year that data is available for all species. Minke whales account for the most known entanglement mortalities (31), followed by humpback whales (20), right whales (8), and fin whales (6).

Exhibit 11-2



11.4 REGULATORY ALTERNATIVES

11.4.1 Overview

NMFS has identified seven regulatory alternatives for consideration. The first of these (Alternative 1) is the No Action Alternative, which would make no changes to the ALWTRP. The remaining alternatives propose modifications to the ALWTRP that include some combination of the following:

- **Gear Configuration Requirements** – All of the alternatives propose area-specific minimum trawl lengths for trap/pot fisheries in the Northeast; the minimums specified vary by alternative (see below). Additional provisions mandate the use of single traps or pots and specify weak link, vertical line strength, and vertical line composition requirements for trap/pot fisheries in the Southeast; these requirements are the same for all action alternatives.

- **Closures –** Several alternatives would prohibit ALWTRP trap/pot vessels from fishing in designated areas during designated periods (see below).

- **Gear Marking –** Each of the action alternatives includes revised gear marking requirements for vessels subject to the ALWTRP. The proposed gear marking scheme calls for three 12-inch marks per vertical line, adhering to a regional color-coding system. Under Alternatives 2 through 6 (Draft), the requirements would apply to all gear set in non-exempt waters, as well as to gear set in exempt waters of Maine and New Hampshire. Alternative 6 (Preferred) would impose similar requirements, but would not require gear set landward of Maine's exemption line to be marked.

Exhibit 11-3 provides an overview and comparison of the alternatives. With the exception of Alternative 6 (Preferred), all of the alternatives were considered in NMFS' Draft Environmental Impact Statement (DEIS).

Exhibit 11-4 describes the gear configuration requirements of the action alternatives in greater detail, showing how they vary. Most notably, Alternatives 3, 5, 6 (Draft), and 6 (Preferred) modify the minimum trawl length restrictions incorporated under Alternative 2; the trawling requirements under Alternative 4 are equivalent to those specified in Alternative 2.

Alternatives 2 through 6 (Preferred) include a set of special requirements for the blue crab and OTP fisheries operating in ALWTRP-regulated waters off the coasts of South Carolina, Georgia, and Florida. In waters off South Carolina and Georgia, the alternatives require affected vessels to fish singles; use weak links with a breaking strength no greater than 600 pounds; use vertical line with a breaking strength no greater than 2,200 pounds; and use vertical line that is free of weights, knots, and splices. The requirements for waters off Florida are similar, but specify 200-pound weak links and the use of sink rope with a breaking strength no greater than 1,500-pounds over the entire length of each vertical line.

As noted, some of the alternatives under consideration would introduce the seasonal closure of designated areas to trap/pot gear. Exhibit 11-5 summarizes the basic parameters of each closure, while Exhibit 11-6 presents a series of maps illustrating the location of the areas in which fishing would be restricted. The objective of these provisions is to reduce the concentration of fishing gear when whales are likely to congregate in the areas designated for closure, thus reducing the risk of entanglement. Chapter 3 provides additional detail on the rationale for each closure.

Exhibit 11-3

SUMMARY OF PROPOSED ALTERNATIVES

Alternative	Gear Restrictions	Closures	Gear Marking
Alternative 1 (No Action)	- No change	- None	- No change
Alternative 2	- Area-specific trawling requirements in Northeast - Southeast gear restrictions (weak links, line strength, line composition, singles)	- None	- New system requiring three 12-inch marks per vertical line, adhering to a regional color-coding system - Required in non-exempt waters and ME/NH exempt waters
Alternative 3	- Area-specific trawling requirements with modifications in Maine Zones A-G and exemptions in NH state waters - Southeast: Same as Alternative 2	- CCB Restricted Area	- Same as Alternative 2
Alternative 4	- Same as Alternative 2	- Jordan Basin - Jeffreys Ledge - Massachusetts Restricted Area #1	- Same as Alternative 2
Alternative 5	- Same as Alternative 3	- Jordan Basin - Jeffreys Ledge - Massachusetts Restricted Area #1	- Same as Alternative 2
Alternative 6 (Draft)	- Same as Alternative 3, but with revised trawling requirement in MA state waters (2 traps per trawl rather than 3 traps per trawl)	- Massachusetts Restricted Area #2	- Same as Alternative 2
Alternative 6 (Preferred)	- Same as Alternative 6 (Draft), but with pairs allowed in ME pocket waters and RI state waters; buffer for ME islands; modified exemption for NH state waters	- Massachusetts Restricted Area #2	- Same as Alternative 2, but not required in Maine exempt waters

Exhibit 11-4

SUMMARY OF GEAR RESTRICTION PROVISIONS

Region	Subarea[1]	Component	Alt. 2[2]	Alt. 3	Alt. 4	Alt. 5	Alt. 6 (Draft)	Alt. 6 (Preferred)
North-east	ME Zones A-G: State Waters	Trawl Length	2 to 4	2	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3, ¼ mile island buffer
	ME Zones A-G: (3-12 mile)	Trawl Length	5 or 10	N.A.	= Alt. 2	N.A.	N.A.	N.A.
	ME Zones A-G: (12+ mile)	Trawl Length	10 or 20	15	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
	ME Zones A-G: (3-6 mile)	Trawl Length	N.A.	3	N.A.	= Alt. 3	= Alt. 3	= Alt. 3
	ME Zones A-G (6-12 mile)	Trawl Length	N.A.	5 or 10	N.A.	= Alt. 3	= Alt. 3	= Alt. 3
	MA State Waters	Trawl Length	3	= Alt. 2	= Alt. 2	= Alt. 2	2	2
	NH State Waters	Trawl Length	3	Exempt	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3[3]
	RI State Waters	Trawl Length	3	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	2
	LMA 1 Other (3-12 mile)	Trawl Length	10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	LMA 1 Other (12+ mile)	Trawl Length	20	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	LMA OC (3-12 mile)	Trawl Length	10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	LMA OC (12+ mile)	Trawl Length	20	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	LMA 2 (3-12 mile)	Trawl Length	10	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	LMA 2 (12+ mile)	Trawl Length	20	15	= Alt. 2	= Alt. 3	= Alt. 3	= Alt. 3
	LMA 2/3 Overlap (12+mile)	Trawl Length	20	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
	LMA 3 (3-12 mile)	Trawl Length	10	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
	LMA 3 (12+ mile)	Trawl Length	20	= Alt. 2	= Alt. 2	=Alt. 2	=Alt. 2	=Alt. 2
South-east	Florida State Waters	Weak links	≤200 lbs.	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	
		Vertical Line	Breaking strength ≤1,500 lbs., one continuous piece of sinking line	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
		Other	One buoy line with one trap, gear mark	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Georgia and South Carolina State Waters	Weak Links	≤600 lbs.	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
		Vertical Line	Breaking strength ≤2,200 lbs., one continuous piece of sinking line	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
		Other	One buoy line with one trap, gear mark	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
	Federal Waters	Weak links	Status quo	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
		Vertical Line	Must be one continuous piece of sinking line	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2
		Other	Must use one buoy line with one trap, gear mark, bring gear back to shore at conclusion of trip	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2	= Alt. 2

Notes:

1. LMA – Lobster Management Area; OC – Outer Cape.
2. Trawls with 5 or fewer traps may have only one endline.
3. Gear set in New Hampshire state waters would be exempt from trawling requirements, but must satisfy existing ALWTRP requirements.

Exhibit 11-5 SUMMARY OF AREA CLOSURE PROVISIONS			
Closure	**Regulatory Alternative**	**Closure Period**	**Size (square miles)**
CCB Restricted Area	3	February - April	644
Jordan Basin	4 & 5	November - January	725
Jeffreys Ledge	4 & 5	October – January	607
Massachusetts Restricted Area #1	4 & 5	January - April	2,464
Massachusetts Restricted Area #2	6 (Draft) & 6 (Preferred)	January - April	2,161

Exhibit 11-6

LOCATION OF RESTRICTED AREAS

JORDAN BASIN RESTRICTED AREA

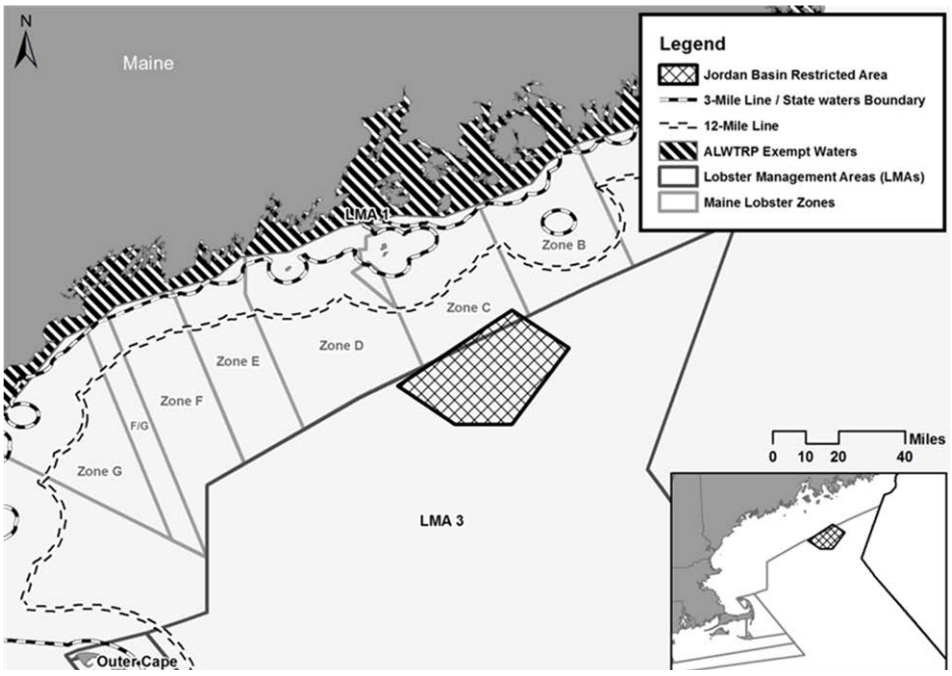
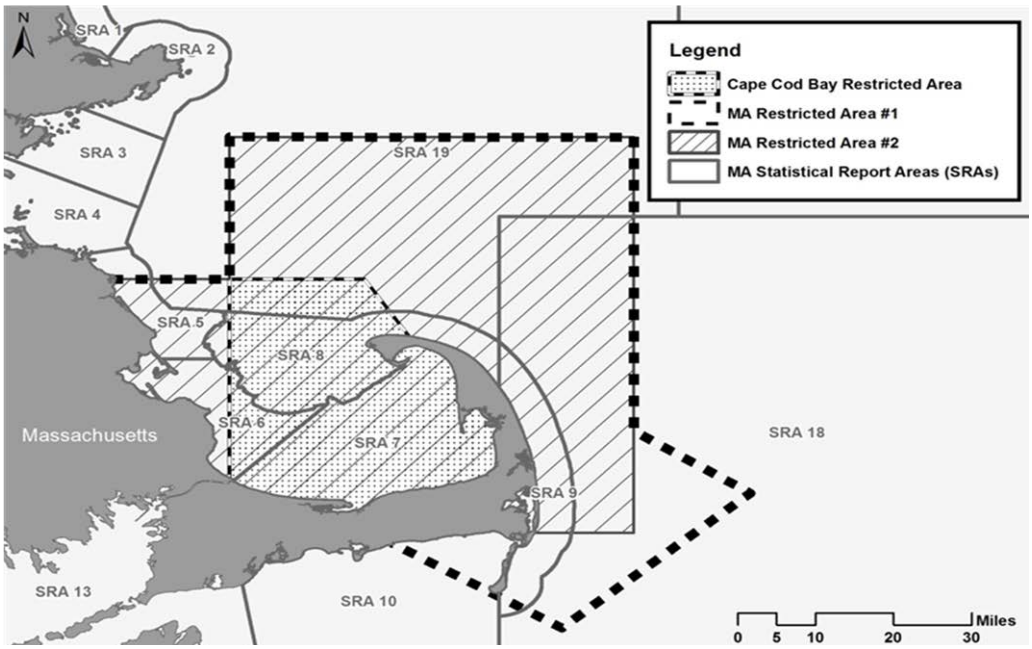


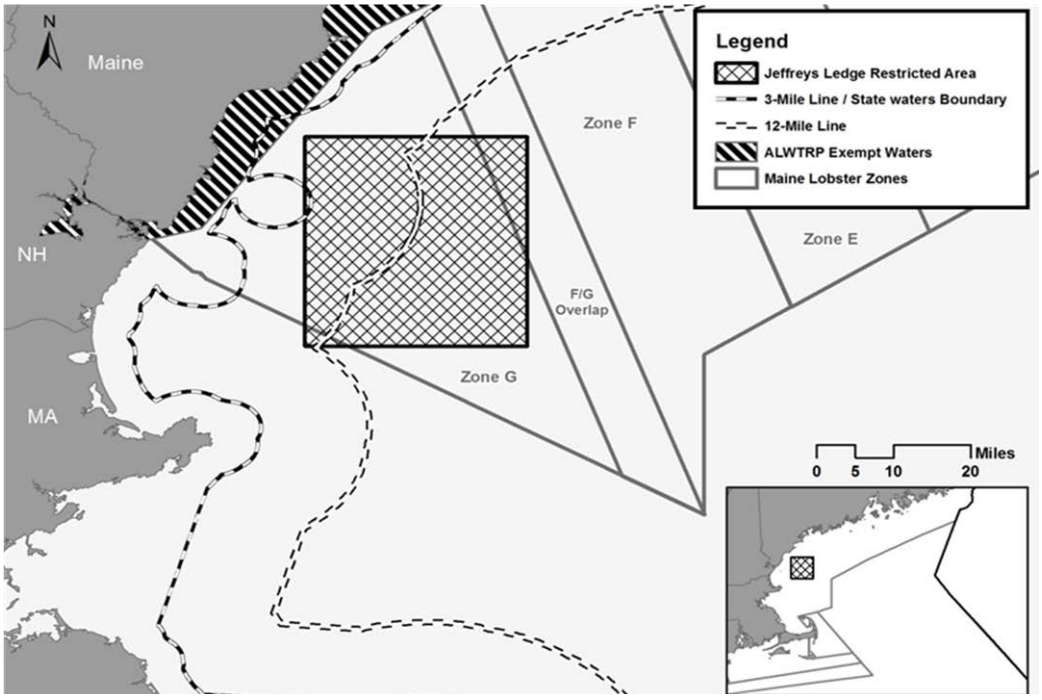
Exhibit 11-6

LOCATION OF RESTRICTED AREAS (continued)

CAPE COD CLOSURES



JEFFREYS LEDGE RESTRICTED AREA



11.4.2 Preferred Alternative

In response to comments received on the DEIS and proposed rule, NMFS formulated a preferred alternative for the FEIS that differs in several respects from Alternative 5, which NMFS identified as its preferred alternative in the DEIS. Specifically, Alternative 6 (Preferred) differs from Alternative 5 in the following ways:

- It maintains the sinking groundline requirement for gear set in New Hampshire state waters that are currently subject to that requirement;
- It imposes no gear marking requirement for waters in Maine that are exempt from all other ALWTRP requirements;
- It specifies a minimum of two traps per trawl in Massachusetts and Rhode Island state waters, rather than three;
- It requires a minimum of two traps per trawl in Maine pocket waters, rather than three;
- It imposes no trawling requirement for trap/pot gear set within a quarter mile of Monhegan, Matinicus, or Ragged Islands;
- It does not incorporate the seasonal closure of Jordan Basin or Jeffreys Ledge; and
- It requires the seasonal closure of Massachusetts Restricted Area #2 rather than Massachusetts Restricted Area #1.

For the most part, the changes in NMFS' proposed regulations respond to comments concerning the impact of the new rules on commercial fishermen. The changes are designed to reduce the economic and social impacts of the new requirements while having a relatively modest impact on the effectiveness of these requirements in achieving the goals of the ALWTRP. This is borne out by the summary of estimated impacts presented in Chapter 8, which indicates that Alternative 6 (Preferred) would achieve nearly as great a reduction in co-occurrence scores as Alternative 5 (an estimated 37 to 38 percent reduction under Alternative 6 (Preferred) vs. a 40 to 42 percent reduction under Alternative 5) at approximately 57 to 70 percent of the estimated cost. Additional information on NMFS' consideration of public comments in developing its preferred alternative is provided below.

11.4.3 Public Comments and NMFS Response

11.4.3.1 Comments during Scoping Process

The scoping efforts conducted for this rulemaking included meetings of the full ALWTRT and ALWTRT subgroups, as well as a series of public meetings held in the summer of 2011 at key locations along the Atlantic coast. The stakeholders engaged through this process recommended a variety of approaches for achieving the goals of the ALWTRP. Chapter 3 of the

EIS summarizes the input they provided, including (1) suggestions that were incorporated into the alternatives analyzed in the EIS, and (2) suggestions that were considered but rejected in the formulation of regulatory alternatives.

11.4.3.2 Comments on the DEIS and Associated IRFA

Volume II of the EIS includes a summary of the comments received on the DEIS and NMFS' response to those comments, highlighting where it has revised the draft analysis or explaining why NMFS believes the issue has been adequately considered. None of the comments received focused specifically on the IRFA presented in the DEIS. Numerous comments, however – particularly those offered by commercial fishermen at public hearings along the Atlantic coast – questioned the cost-effectiveness of Alternative 5, which NMFS identified as its preferred alternative in the DEIS. In addition, both fishermen and state fisheries management agencies raised concerns about the safety, enforceability, or practicality of proposed requirements in certain areas and noted the economic burden they would place on those affected.

The comments on the DEIS have guided formulation of a new preferred alternative for the FEIS. This alternative – Alternative 6 (Preferred) – differs from Alternative 5 in a number ways. The changes in the proposed regulations are designed to mitigate the economic and social impacts of new ALWTRP requirements without substantially reducing the requirements' overall effectiveness. The major changes relative to NMFS' initial regulatory proposal are as follows:

- Alternative 6 (Preferred) would impose no gear marking requirement for Maine waters that are exempt from other ALWTRP requirements. Maintaining the status quo for those who fish in these areas relieves them of the cost of marking gear used where whales are infrequently sighted. Moreover, the introduction of a unique gear marking scheme for these areas, as proposed under Alternative 5, would raise operational difficulties for fishermen who routinely shift gear between exempt and non-exempt areas; they would either need to remark their gear each time they crossed the exemption line or maintain different sets of line for each area. By removing the gear marking requirement for exempt waters – as suggested, among others, by Maine's Department of Marine Resources, the Downeast Lobstermen's Association, the Island Institute, and the Maine Lobstermen's Association – Alternative 6 (Preferred) eliminates this complexity and reduces the potential burden on affected vessels.

- Alternative 6 (Preferred) specifies a minimum of two traps per trawl in Massachusetts and Rhode Island state waters, rather than three. This change is in response to comments from the Massachusetts Division of Marine Fisheries, the Rhode Island Department of Environmental Management, and others who raised concerns about the safety and operational feasibility of fishing three-trap trawls from small vessels that operate in state waters.

- Alternative 6 (Preferred) also specifies a minimum of two traps per trawl in Maine pocket waters, rather than three. This change responds to comments from Maine's Department of Marine Resources, the Downeast Lobstermen's Association, and the Maine Lobstermen's Association concerning the practicality of enforcing a different standard (i.e., a minimum of three traps per trawl) in these waters, which are small areas of the U.S. Exclusive Economic Zone that lie between but not within Maine state waters. Chapter 3 illustrates the location of these areas.

- Alternative 6 (Preferred) imposes no trawling requirement for trap/pot gear set within a quarter mile of Monhegan, Matinicus, or Ragged Islands. This change is in response to comments from Maine's Department of Marine Resources, the Downeast Lobstermen's Association, the Island Institute, and the Maine Lobstermen's Association, all of whom raised concerns about the safety and operational feasibility of employing trawls in these waters, particularly for those fishing from small boats.

- Alternative 6 (Preferred) does not incorporate the seasonal closure of Jordan Basin or Jeffreys Ledge, responding to comments from the Maine Department of Marine Resources, New Hampshire Fish and Game Department, and Massachusetts Division of Marine Fisheries, among others, who questioned the cost-effectiveness of these measures and noted the substantial burden they would place on the vessels they would displace.

- Alternative 6 (Preferred) requires the seasonal closure of Massachusetts Restricted Area #2 rather than Massachusetts Restricted Area #1, thus leaving slightly more than 300 square miles of ocean south and east of Cape Cod open to trap/pot gear from January through April. This change in response to comments from the Massachusetts Division of Marine Fisheries, which noted that Massachusetts Restricted Area #1 includes an area of Nantucket Sound where whales are unlikely to be found and no co-occurrence of whales with trap/pot gear has been documented.

11.5 SMALL ENTITIES AFFECTED

The Small Business Administration (SBA) size standards define whether a business entity is small and, thus, eligible for Government programs and preferences reserved for "small business" concerns. Size standards have been established for all for-profit economic activities or industries in the North American Industry Classification System (NAICS). The SBA defines a small business in the commercial fishing sector as a firm with receipts (gross revenues) of up to $3.5 million. Processing facilities (e.g., canning, curing, freezing) are considered small businesses if they employ 500 or fewer individuals. For fish and seafood wholesalers, a small business is defined as one that employees 100 or fewer employees. As such, virtually all fishing and most wholesale and processing operations in the eastern U.S. are small businesses.

11.5.1 Fishing Operations

The ALWTRP governs fishing operations that set fishing gear in ways that place fishing line (e.g., buoy lines) in the water column, thereby creating the potential for whale entanglements. The fisheries of primary concern that are affected by the ALWTRP include the American lobster trap/pot fishery; the blue crab trap/pot fishery; OTP fisheries such as red crab and Jonah crab; and gillnetting operations. A detailed description of each of the fisheries can be found in Chapter 4 of this EIS. Exhibit 11-7 summarizes the number of vessels in each of the affected fisheries subject to regulation under each management alternative. As shown, the analysis estimates that Alternatives 2 through 6 (Draft) would affect more than 6,000 commercial fishing vessels (i.e., small businesses in the harvest sector), while Alternative 6 (Preferred) would affect approximately 4,000 vessels. The overwhelming majority of these vessels participate in the lobster trap/pot fishery. Chapter 6 describes the data sources and methodology used to derive these estimates in greater detail.

Exhibit 11-7

NUMBER OF VESSELS AFFECTED BY NEW REQUIREMENTS, BY FISHERY

Regulatory Provisions	Regulatory Alternative	Fishery				Total
		Lobster Trap/Pot	Other Trap/Pot	Blue Crab	Gillnet	
Gear Configuration	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	1,679	139	0	0	1,817
	Alternative 3	1,256	136	0	0	1,392
	Alternative 4	1,695	139	0	0	1,834
	Alternative 5	1,263	136	0	0	1,400
	Alternative 6 (Draft)	1,228	136	0	0	1,364
	Alternative 6 (Preferred)	1,221	136	0	0	1,357
Closures	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	0	0	0	0	0
	Alternative 3	16	0	0	0	16
	Alternative 4	184	0	0	0	184
	Alternative 5	184	0	0	0	184
	Alternative 6 (Draft)	109	0	0	0	109
	Alternative 6 (Preferred)	109	0	0	0	109
Gear Marking	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	5,300	282	48	499	6,129
	Alternative 3	5,300	282	48	499	6,129
	Alternative 4	5,300	282	48	499	6,129
	Alternative 5	5,300	282	48	499	6,129
	Alternative 6 (Draft)	5,300	282	48	499	6,129
	Alternative 6 (Preferred)	3,186	274	48	498	4,006
All	Alternative 1 (No Action)	0	0	0	0	0
	Alternative 2	5,300	282	48	499	6,129
	Alternative 3	5,300	282	48	499	6,129
	Alternative 4	5,300	282	48	499	6,129
	Alternative 5	5,300	282	48	499	6,129
	Alternative 6 (Draft)	5,300	282	48	499	6,129
	Alternative 6 (Preferred)	3,186	274	48	498	4,006

Note: Values may not sum to the totals shown due to rounding.

Although the analysis indicates that the alternatives under consideration could affect several thousand vessels, only a subset of these vessels is likely to be substantially affected. The economic analysis estimates the costs of gear marking to be relatively minor (see Chapter 6 for a detailed discussion of the costs of gear marking). The costs of compliance with gear conversion and closure requirements, however, may be substantial. As such, the analysis does not anticipate that blue crab or gillnet vessels will be substantially affected by the regulations. A subset of participants in the lobster fishery and, to a lesser extent, other trap/pot fisheries will bear the greatest regulatory burden.

11.5.2 Other Small Entities

In addition to fishing operations, the introduction of new regulations under the ALWTRP could potentially affect seafood dealers and processors. Seafood dealers include wholesale businesses that purchase fish at the dock and distribute it to processors and retailers. Because ALWTRP regulations affect fisheries that land a variety of species, the types of processing facilities that may be affected are diverse, and include operations that fillet, freeze, package, and otherwise prepare seafood. Effects on dealers and processors would be significant to the extent that compliance with the ALWTRP influences the quantity of lobster, crabs and fish landed.

As Chapter 6 discusses in detail, the economic impact analysis assumes that implementation of all action alternatives would result in an overall reduction in lobster landings. This effect is due to two factors:

- A reduction in catch per trap resulting from the use of longer trawls; and
- Reduced effort or relocation to less productive fishing grounds during seasonal closures.

Exhibit 11-8 summarizes the number of dealers and processors potentially affected by the proposed changes in ALWTRP requirements. Because the requirements that may lead to harvest reductions (i.e., gear modifications and seasonal closures) are limited to the Northeast region, identification of the number of potentially affected dealers and processors is limited to those located in that region. As shown, the analysis suggests that 428 dealers and 64 processors could be affected by the changes to the ALWTRP that NMFS is considering.

In addition to dealers and processors, revisions to ALWTRP requirements could potentially affect other small entities in the regional economy (to the extent that landings are reduced). These include small seafood retailers, fishing gear manufacturers and suppliers, and marina operators. Because data on these sectors are not readily available, the analysis does not examine them in detail.

Exhibit 11-8

NUMBER OF DEALERS AND PROCESSING OPERATIONS POTENTIALLY AFFECTED BY CHANGES IN ALWTRP REQUIREMENTS

County	State	Number of Dealers Handling ALWTRP Species	Number of Facilities Processing ALWTRP Species
Washington	ME	28	1
Hancock	ME	34	2
Waldo	ME	3	1
Knox	ME	40	1
Lincoln	ME	21	3
Sagadahoc	ME	4	1
Cumberland	ME	37	8
York	ME	19	2
Rockingham	NH	18	2
Essex	MA	40	9
Suffolk	MA	10	14
Norfolk	MA	5	0
Plymouth	MA	32	0
Barnstable	MA	36	4
Nantucket	MA	2	0
Dukes	MA	9	0
Bristol	MA	33	9
Newport	RI	22	0
Bristol	RI	5	0
Providence	RI	0	3
Kent	RI	5	0
Washington	RI	25	4
Total		**428**	**64**

Note:

[1] The analysis estimates the number of dealers based on data from NMFS' Dealer Database as well as NMFS' database on federally permitted seafood processing facilities. The number of dealers is derived by identifying all 2011 landings caught with gear potentially subject to ALWTRP regulations, then calculating the number of unique dealer operations purchasing this catch. The number of processors is calculated by identifying the set of processing facilities that handle any of the species caught in ALWTRP-regulated gear.

11.6 IMPACTS OF REGULATORY ALTERNATIVES ON SMALL ENTITIES

11.6.1 Impacts of Alternative 6 (Preferred) on Fishing Operations

As noted above, the analysis indicates that the new management measures incorporated under Alternative 6 (Preferred) would affect approximately 4,000 vessels. In most cases, however, the impact would be limited to compliance with new gear marking provisions. The cost of complying with these provisions is relatively minor and unlikely to lead to substantial economic impacts, such as vessel retirement (see Chapter 6 for a detailed discussion of the costs of gear marking). Thus, the analysis does not anticipate a substantial impact on vessels that would be affected solely by the introduction of the new gear marking scheme.

The impact of minimum trawl length requirements and the seasonal closure of Massachusetts Restricted Area #2 to trap/pot gear would be more substantial. The cost of complying with the gear configuration provisions includes the cost of acquiring new gear (e.g., additional groundline), labor costs associated with reconfiguring gear, and associated catch impacts. For vessels affected by the closure, the impact is a loss in revenue, coupled with relocation costs (e.g., fuel, time, and potential catch impacts) for vessels that seek out alternative fishing grounds.

The discussion that follows looks more closely at specific sub-segments of the harvest sector and potential impacts on vessel operators. The discussion focuses on whether the costs of regulatory compliance will adversely affect these small businesses and/or cause changes in fishing effort (e.g., vessel retirement) and landings that may lead to impacts to small businesses in the dealer and processing sectors. To identify potentially hard-hit sectors of the harvest sector, the analysis compares estimates of average vessel compliance costs under Alternative 6 (Preferred) to estimates of average gross revenue per vessel.[9] Exhibits 11-9 through 11-11 present the results of this analysis. There is no clearly-defined threshold at which annualized costs represent a large enough percent of annual revenues that a vessel operator would cease fishing, or would otherwise suffer economic hardship. For purposes of analysis, however, the exhibits highlight two impact categories:

- **Heavily-Affected Vessels –** Segments of a fishery for which the estimated upper bound compliance costs exceed 15 percent of annual revenues.

- **At-Risk Vessels –** Segments of a fishery for which estimated compliance costs range between 5 and 15 percent of annual revenues.

Vessels that would not be affected by the seasonal closure of Massachusetts Restricted Area #2 are likely to face substantially lower cost burdens than those affected by the closure. In light of this difference, the analysis separately describes the estimated impact of Alternative 6 (Preferred) on these two groups of vessels.

[9] A summary of the estimated impacts of the other alternatives analyzed is presented later in this chapter.

11.6.1.1 Impacts of Gear Configuration and Gear Marking Requirements

Under Alternative 6 (Preferred), the cost of meeting new gear configuration and gear marking requirements is estimated to be less than 15 percent of gross revenues for all vessels (see Exhibits 11-9 and 11-10). As a result, the impact of these provisions alone would not lead any group of vessels to be designated as heavily affected, either in the low or high cost scenarios. Several groups, however, are identified as at-risk. Under the lower bound scenario, the at-risk category includes OTP vessels fishing in the state waters of Rhode Island or northern Massachusetts (SRAs 1-9). Under the upper bound scenario, the analysis identifies 10 additional groups of vessels as at-risk:

- OTP vessels fishing in Massachusetts SRAs 10 through 13 or SRA 14, as well as OTP vessels fishing in Federal waters of the Northeast region;
- Massachusetts lobster vessels fishing in SRAs 7, 9, and 14;
- Lobster vessels fishing in the non-exempt state waters of Maine Zone E; and
- Lobster vessels fishing in the Federal waters of Maine Zones D, E, and F.[10]

The estimate of impacts for these vessels ranges no higher than seven percent of gross revenues in the lower bound scenario and no higher than 12 percent in the upper bound scenario. This impact is substantial; however, the economic burden associated with gear marking and gear reconfiguration provisions alone is not sufficient to place these vessels in the heavily affected category, or to suggest that the impact of complying with these provisions would have a severe impact on socioeconomic conditions in coastal communities.

11.6.1.2 Vessels Affected by Closures

In comparison to Alternative 1, the no action alternative, the analysis estimates that under Alternative 6 (Preferred), 109 lobster vessels would be required to suspend operations or relocate their effort to comply with the seasonal closure of Massachusetts Restricted Area #2. The costs these vessels would incur to comply with the closure would be in addition to the costs attributable to other requirements. The analysis indicates that, in aggregate, these measures would have a substantial impact on the affected vessels (see Exhibit 11-11).

[10] It is important to recognize that the estimate of impacts presented for each group of vessels is limited to the costs and revenues associated with gear being fished in a specific location. In practice, vessels may fish in multiple locations. Thus, the estimated cost of compliance as a percentage of revenue does not necessarily represent the overall burden on a particular vessel; instead, it represents the impact on that vessel for the portion of its effort based in a given area. Similarly, the estimate of revenues employed in the analysis does not necessarily represent a vessel's total revenues; it simply represents the revenues derived from effort in a particular area.

- As a lower bound, the analysis assumes that the vessels affected by the closure would be able to relocate their gear and continue to operate in other areas while the closure remains in effect. Under this scenario, the annual cost of compliance is estimated to range from 4.8 to 12.4 percent of the affected vessels' average annual gross revenue. The results suggest that most of those affected would face a cost burden that would place them in the at-risk category (i.e., annualized compliance costs ranging from 5 to 15 percent of annual revenues).

- As an upper bound, the analysis assumes that the affected vessels would suspend operations and forgo the revenue (net of operating cost savings) on the catch they otherwise would have landed. In this case, the annual cost of compliance is estimated to range from 8.8 to 20.4 percent of the affected vessels' average annual gross revenue. The impact on most of those that would be displaced is estimated at greater than 15 percent – above the threshold specified for "heavily affected" vessels – suggesting the potential for some vessels to cease fishing entirely.

Exhibit 11-9

COMPARISON OF VESSEL COMPLIANCE COSTS TO GROSS REVENUES UNDER ALTERNATIVE 6 (PREFERRED): GEAR MARKING AND RECONFIGURATION – LOBSTER VESSELS

Waters	State	Zone/Area	Number of Vessels Affected[1]	Lower Bound Annualized Compliance Costs[2]	Upper Bound Annualized Compliance Costs[2]	Average Annual Gross Revenue	Lower Bound Cost as a Percent of Revenue	Upper Bound Cost as a Percent of Revenue
At-Risk Vessels								
Federal	ME	E	98	$807	$1,885	$23,713	3.4%	8.0%
State	MA	14	27	$449	$883	$14,144	3.2%	6.2%
State	MA	9	42	$1,569	$3,122	$50,386	3.1%	6.2%
State	MA	7	67	$1,242	$2,467	$40,106	3.1%	6.2%
Federal	ME	D	147	$516	$2,300	$39,030	1.3%	5.9%
Federal	ME	F	143	$448	$1,350	$23,373	1.9%	5.8%
State	ME	E	51	$838	$1,553	$28,000	3.0%	5.5%
Other Vessels								
Federal	ME	B	103	$390	$1,544	$31,250	1.2%	4.9%
Federal	ME	C	105	$425	$2,141	$44,102	1.0%	4.9%
Federal	ME	G	155	$95	$1,494	$41,500	0.2%	3.6%
State	ME	D	165	$747	$1,276	$42,584	1.8%	3.0%
State	MA	S. Cape (10-13)	37	$214	$383	$13,410	1.6%	2.9%
State	ME	B	59	$281	$467	$22,489	1.3%	2.1%
Federal	ME	A	184	$(330)	$783	$43,017	-0.8%[3]	1.8%
Federal	Other	LMA OC Other	15	$403	$2,114	$122,471	0.3%	1.7%
State	ME	F	29	$472	$771	$47,202	1.0%	1.6%
State	ME	G	48	$314	$510	$33,086	1.0%	1.5%
State	ME	C	175	$531	$793	$53,513	1.0%	1.5%
Federal	Other	LMA 2 Other	113	$190	$924	$64,740	0.3%	1.4%
State	MA	8	30	$310	$570	$46,542	0.7%	1.2%
State	MA	6	70	$256	$444	$38,588	0.7%	1.2%
Federal	Other	LMA 1 Other	267	$85	$498	$45,131	0.2%	1.1%
State	ME	A	132	$75	$223	$30,100	0.2%	0.7%
State	MA	3	119	$146	$230	$35,128	0.4%	0.7%
State	RI	All	74	$122	$184	$28,477	0.4%	0.6%
State	MA	5	78	$139	$216	$34,008	0.4%	0.6%
State	MA	1	29	$114	$170	$29,193	0.4%	0.6%
State	MA	2	158	$129	$189	$38,622	0.3%	0.5%

Exhibit 11-9

COMPARISON OF VESSEL COMPLIANCE COSTS TO GROSS REVENUES UNDER ALTERNATIVE 6 (PREFERRED): GEAR MARKING AND RECONFIGURATION – LOBSTER VESSELS

Waters	State	Zone/Area	Number of Vessels Affected[1]	Lower Bound Annualized Compliance Costs[2]	Upper Bound Annualized Compliance Costs[2]	Average Annual Gross Revenue	Lower Bound Cost as a Percent of Revenue	Upper Bound Cost as a Percent of Revenue
State	MA	4	141	$124	$190	$52,792	0.2%	0.4%
State	NH	All	134	$81	$81	$32,589	0.2%	0.2%
Federal	Other	LMA 3	66	$79	$80	$381,295	0.0%	0.0%

Notes:

1. Number of affected vessels based on methods discussed in economic impact analysis.
2. This exhibit considers only the costs of compliance attributable to gear marking and reconfiguration requirements. All impacts are measured relative to Alternative 1, the no action alternative.
3. As noted in Chapter 6, the analysis of gear conversion costs results in net cost savings for some groups of vessels. The negative value reported here reflects such savings, which are primarily attributable to a reduction in the number of buoy systems required when trawls are employed. While this is an anomalous result – the introduction of a regulatory mandate is unlikely to lead to a reduction in costs – the value is reported for the sake of both analytic consistency and transparency.
4. Affected groups are listed in descending order, based on costs as a percent of gross revenue in the upper bound scenario.
5. No groups are identified as "heavily affected."

Exhibit 11-10

COMPARISON OF VESSEL COMPLIANCE COSTS TO GROSS REVENUES UNDER ALTERNATIVE 6 (PREFERRED): GEAR MARKING AND RECONFIGURATION – OTP VESSELS

Waters	State	Zone/Area	Number of Vessels Affected[1]	Lower Bound Annualized Compliance Costs[2]	Upper Bound Annualized Compliance Costs[2]	Average Annual Gross Revenue	Lower Bound Cost as a Percent of Gross Revenue	Upper Bound Cost as a Percent of Gross Revenue
At-Risk Vessels								
State	RI	All	57	$286	$491	$4,086	7.0%	12.0%
State	MA	Northern (1-9)	7	$9,995	$19,950	$199,103	5.0%	10.0%
State	MA	S. Cape (10-13)	52	$4,555	$9,075	$121,067	3.8%	7.5%
Federal	Northeast		8	$5,898	$14,704	$199,103	3.0%	7.4%
State	MA	14	38	$1,042	$2,049	$36,197	2.9%	5.7%

Notes:

1. Number of affected vessels based on methods discussed in economic impact analysis.
2. This exhibit considers only the costs of compliance attributable to gear marking and reconfiguration requirements. All impacts are measured relative to Alternative 1, the no action alternative.
3. Affected groups are listed in descending order, based on costs as a percent of gross revenue in the upper bound scenario.
4. No groups are identified as "heavily affected."

Exhibit 11-11

COMPARISON OF VESSEL COMPLIANCE COSTS TO GROSS REVENUES UNDER ALTERNATIVE 6 (PREFERRED): GEAR MARKING, RECONFIGURATION, AND CLOSURES – LOBSTER VESSELS

Waters	State	Zone/Area	Closure	Number of Vessels Affected[1]	Annualized Gear Reconfiguration and Marking Costs		Annualized Closure Costs		Average Annual Gross Revenue	Lower Bound Total Cost as a Percent of Gross Revenue[2]	Upper Bound Total Cost as a Percent of Gross Revenue[2]
					Lower Bound	Upper Bound	Lower Bound	Upper Bound			
Heavily Affected Vessels											
Federal	MA	LMA 1 Other	MA Restricted Area #2	71	$85	$498	$5,513	$8,695	$45,131	12.4%	20.4%
State	MA	7	MA Restricted Area #2	3	$1,242	$2,467	$3,361	$5,036	$40,106	11.5%	18.7%
State	MA	9	MA Restricted Area #2	1	$1,569	$3,122	$3,361	$5,036	$50,386	9.8%	16.2%
State	MA	5	MA Restricted Area #2	15	$139	$216	$3,361	$5,036	$34,008	10.3%	15.4%
At-Risk Vessels											
State	MA	6	MA Restricted Area #2	14	$256	$444	$3,361	$5,036	$38,588	9.4%	14.2%
State	MA	8	MA Restricted Area #2	5	$310	$570	$3,361	$5,036	$46,542	7.9%	12.0%
Federal	MA	LMA OC Other	MA Restricted Area #2	1	$403	$2,114	$5,513	$8,695	$122,471	4.8%	8.8%

Notes:
1. Number of affected vessels based on the average number of full-time equivalent vessels active in the zone/area over the months of the closure, as estimated by the Vertical Line Model.
2. This exhibit considers the total costs of compliance for vessels affected by area closures; i.e., costs attributable to closures as well as those associated with gear marking and gear reconfiguration. All impacts are measured relative to Alternative 1, the no action alternative.

11.6.2 Impacts of Alternative 6 (Preferred) on Dealers and Processors

To the extent that changes in ALWTRP regulations reduce overall harvest, small businesses in the dealer and processing sectors may be affected. For Alternative 6 (Preferred), the analysis projects a potential reduction in lobster landings ranging from 474,000 to 1,231,000 pounds per year (see Appendix 7-B). Relative to 2011, when commercial landings of lobster totaled 126,460,000 pounds, this represents a 0.4 to 1.0 percent reduction in annual landings.

Even if the impacts at the high end of the range projected for Alternative 6 (Preferred) are realized, a notable effect on the lobster market is unlikely, particularly in the long run. All else equal, a 1.0 percent reduction in landings would be expected to result in an increase in the price that dealers and processors pay for lobster. The impact on prices would likely be greatest from January through April, when the closure of Massachusetts Restricted Area #2 would be in effect. This increase, however, is likely to be offset by an increase in prices at the wholesale and retail level; to the extent that this occurs, the profits of dealers and wholesalers would be largely unaffected.[11] Moreover, the magnitude of the projected impact is considerably less than the typical fluctuation in annual lobster landings; it may also diminish over time, as fishermen adjust and learn to fish trawls more efficiently. Thus, the marginal effect of the regulations would be unlikely to lead to a substantial change in overall market conditions.

In summary, the analysis suggests that the regulations under consideration would be unlikely to have a major impact on landings. Thus, any impact on the dealer or processing sectors is likely to be minimal.

11.6.3 Impacts of Other Alternatives Analyzed

Exhibit 11-12 compares the projected impacts of Alternative 6 (Preferred) on small businesses to those of the other regulatory alternatives analyzed. The following findings are noteworthy:

- The number of vessels affected by gear reconfiguration requirements is greatest under Alternatives 2 and 4 (approximately 1,800 vessels), and is only slightly less under Alternatives 3, 5, 6 (Draft), and 6 (Preferred) (approximately 1,400 vessels). None of the vessels subject solely to these requirements would face compliance costs that qualify them as heavily affected.

- Based on the ratio of compliance costs to gross revenue, the number of vessels identified as heavily affected ranges from zero under Alternatives 2 and 3 to 163 vessels under Alternatives 4 and 5. For the latter two

[11] It is important to note that any increase in ex-vessel prices would, at least in theory, help to offset the costs that fishermen would incur in complying with new regulations. Whether this would in fact be the case depends on the extent to which an increase in prices at the retail level would translate to an increase in ex-vessel prices, or would instead be reflected in higher profits elsewhere in the supply chain.

alternatives, the vessels in the heavily affected category are lobster vessels that would be displaced either by the closure of Jeffreys Ledge or the closure of Massachusetts Restricted Area #1. In contrast, under Alternative 6 (Draft) and 6 (Preferred), the analysis identifies 90 vessels as heavily affected; this group consists of lobster vessels that would be displaced by the closure of Massachusetts Restricted Area #2.

- The estimated reduction in landings of lobster is greatest under Alternative 4 (2.1 million pounds per year) and smallest under Alternative 3 (997,000 pounds per year). However, landings reductions under all alternatives represent less than two percent of 2011 total landings. Because the reduction is substantially less than the annual fluctuation in total landings in recent years, adverse impacts on the dealer and processing sectors under any of the alternatives are unlikely.

Exhibit 11-12

SUMMARY OF IMPACTS BY ALTERNATIVE

Parameter	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6 (Draft)	Alternative 6 (Preferred)
Number of Heavily Affected Vessels (Upper Bound Scenario)	0	0	0	163	163	90	90
Impacts on Dealers	None	Minor short-term supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible
Impacts on Processors	None	Minor short-term supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible	Minor short-term and seasonal supply disruptions possible

11.7 RULES THAT MAY DUPLICATE, OVERLAP, OR CONFLICT WITH PROPOSED RULE

No duplicative, overlapping, or conflicting Federal rules have been identified.

11.8 REFERENCES

Johnson, A.J., G.S. Salvador, J.F. Kenney, J. Robbins, S.D. Kraus, S.C. Landry, and P.J. Clapham, Fishing gear involved in entanglements of right and humpback whales, *Marine Mammal Science* 21(4):635-645, 2005.

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Waring, G.T., E. Josephson, K. Maze-Foley, and P. Rosel (eds.), U.S. Atlantic and Gulf of Mexico marine mammal stock assessments – 2011, NOAA Technical Memorandum NOAA-NE-221, 2012.

12.1 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT INCLUDING ESSENTIAL FISH HABITAT

The Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Act require NMFS to provide recommendations to Federal and state agencies for conserving and enhancing EFH if a determination is made that an action may adversely impact EFH. NMFS policy regarding the preparation of NEPA documents recommends incorporating EFH assessments into environmental impact statements; therefore, this Final Environmental Impact Statement (FEIS) will also serve as an EFH assessment.

Pursuant to these requirements, Chapter 3 of this document provides a description of the alternatives considered for amending the ALWTRP. Chapter 4 provides a description of the affected environment, including the identification of areas designated as EFH (section 4.4.1), Habitat Areas of Particular Concern (section 4.4.2), and an analysis of the impacts of fishing gear on that environment (section 4.4.4).

12.2 NATIONAL ENVIRONMENTAL POLICY ACT

This analysis was prepared in full compliance with the requirements of the National Environmental Policy Act (NEPA). All established procedures to ensure that Federal agency decision makers take environmental factors into account, including the use of a public process, were followed (Exhibits 3B-1 and 3B-2). This FEIS contains all the components required by NEPA, CEQ Regulations for Implementing NEPA, and NOAA Administrative Order 216-6, including a brief discussion of the purpose and need for the proposal (Chapter 2), the alternatives considered (Chapter 3), the environmental impacts of the proposed action and the alternatives (Chapter 5), a list of document preparers and contributors (Chapter 13), and other relevant information.

12.3 ENDANGERED SPECIES ACT

Section 7 of the Endangered Species Act requires Federal agencies conducting, authorizing, or funding activities that may affect threatened or endangered species to ensure that those impacts do not jeopardize the continued existence of listed species or result in the

destruction or adverse modification of habitat determined to be critical. In 2003, NMFS was advised that the 2002 death of a female right whale (RW #3107) was an entanglement-related mortality. The gear recovered from RW #3107 was consistent with gear approved for use in the U.S. lobster fishery, which provided evidence that the reasonable and prudent alternative (RPA) described in the June 14, 2001, biological opinion for this fishery was not effective at avoiding the likelihood of jeopardy to right whales. As required, the Section 7 consultation was reinitiated to examine the effects of the lobster fishery, as modified by the existing ALWTRP and RPA for right whales. These consultations, which concluded in October 2010, evaluated the effect of the proposed action identified in the 2006 FEIS for the existing ALWTRP, which included the measures under each of the fishery management plans as well as those under the ALWTRP. Specifically, these Biological Opinions stated that it was anticipated that the final regulations implementing the vertical line strategy would prioritize risk reduction in areas where there is the greatest co-occurrence of vertical lines and large whales. After reviewing the current status of right, humpback, fin, and sei whales as well as loggerhead and leatherback sea turtles, the environmental baseline and cumulative effects in the action area, the effects of the continued operation of the American Lobster, bluefish, dogfish, monkfish, multispecies, skate, squid, mackerel and butterfish and summer flounder, scup and Northern black sea bass FMPs, in compliance with the requirements of the ALWTRP, in October 2010, NMFS issued its Biological Opinions that these proposed activities are likely to adversely affect, but not jeopardize, the continued existence of these species.

This document analyzes the potential impacts of the preferred alternative (Alternative 6 Final) on ESA-listed species in Chapter 5. This discussion concludes that the preferred alternative would directly benefit the ESA-listed large whales. The preferred alternative would also benefit leatherback sea turtles, which are known to become entangled in buoy lines of trap/pot gear, by reducing the number of buoy lines in the water. No other effects to ESA-listed species are expected as a result of the alternative.

12.4 MARINE MAMMAL PROTECTION ACT

Under the Marine Mammal Protection Act (MMPA), Federal responsibility for protecting and conserving marine mammals is vested with the Departments of Commerce (NMFS) and Interior (USFWS). The primary management objective of the MMPA is to maintain the health and stability of the marine ecosystem, with a goal of obtaining an optimum sustainable population of marine mammals within the carrying capacity of the habitat. The MMPA is intended to work in cooperation with the applicable provisions of the ESA. The ESA-listed species of marine mammal that occur in the ALWTRP management areas are discussed in section 4.1 of the FEIS. The species of marine mammal not listed under the ESA that occur in the ALWTRP management areas are discussed in section 4.3.2, except minke whales, which are discussed in section 4.1.4. The potential impact of the alternatives considered on marine mammals is provided in Chapter 5.

12.5 COASTAL ZONE MANAGEMENT ACT

The Coastal Zone Management Act (CZMA) is designed to encourage and assist states in developing coastal management programs, to coordinate state activities, and to safeguard regional and national interests in the coastal zone. Section 307(c) of the CZMA requires that any Federal activity affecting the land or water uses or natural resources of a state's coastal zone be consistent with the state's approved coastal management program, to the maximum extent practicable. NMFS has determined that the implementation of the preferred alternative would be consistent to the maximum extent practicable with the approved coastal management programs of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida. This determination was submitted, along with a copy of this document, for review and concurrence by the responsible state agencies under Section 307 of the Coastal Zone Management Act.

12.6 ADMINISTRATIVE PROCEDURE ACT

The Federal Administrative Procedure Act (APA) establishes procedural requirements applicable to informal rulemaking by Federal agencies. The purpose of the APA is to ensure public access to the Federal rulemaking process and to give the public notice and an opportunity to comment before the agency promulgates new regulations. Specifically, the APA requires NMFS to solicit, review, and respond to public comments on actions taken in the development of take reduction plans and subsequent amendments and modifications. Development of the alternatives considered for this amendment to the Atlantic Large Whale Take Reduction Plan provided several opportunities for public review, input, and access to the rulemaking process. For example, during the public scoping process, NMFS requested suggestions and information from the public on the range of issues that should be addressed and alternatives that should be considered in this document. Summaries of the written and oral comments received during the public scoping process and public hearings are provided in Volume II of the FEIS.

12.7 INFORMATION QUALITY ACT (SECTION 515)

The Information Quality Act directed the Office of Management and Budget to issue government wide guidelines that "provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies." Under the NOAA guidelines, the Atlantic Large Whale Take Reduction Plan is considered a Natural Resource Plan. It is a composite of several types of information, including scientific, management, and stakeholder input, from a variety of sources. Compliance of this document with NOAA guidelines is evaluated below.

- **Utility:** The information disseminated is intended to describe proposed management actions and the impacts of those actions. The information is intended to be useful to: 1) industry participants, conservation groups, and other interested parties so they can provide informed comments on the

alternatives considered; and 2) managers and policy makers so they can choose an alternative for implementation.

- **Integrity:** Information and data, including statistics, that may be considered as confidential were used in the analysis of impacts associated with this document. This information was necessary to assess the biological, social, and economic impacts of the alternatives considered as required under the National Environmental Policy Act and Regulatory Flexibility Act for the preparation of a final environmental impact statement/regulatory impact review. NMFS complied with all relevant statutory and regulatory requirements as well as NOAA policy regarding confidentiality of data. For example, confidential data were only accessible to authorized Federal employees and contractors for the performance of legally required analyses. In addition, confidential data are safeguarded to prevent improper disclosure or unauthorized use. Finally, the information to be made available to the public was done so in aggregate, summary, or other such form that does not disclose the identity or business of any person.

- **Objectivity:** The NOAA Information Quality Guidelines for Natural Resource Plans state that plans must be presented in an accurate, clear, complete, and unbiased manner. Because take reduction plans and their implementing regulations affect such a wide range of interests, NMFS strives to draft and present proposed management measures in a clear and easily understandable manner with detailed descriptions that explain the decision making process and the implications of management measures on marine resources and the public. Although the alternatives considered in this document rely upon scientific information, analyses, and conclusions, clear distinctions would be drawn between policy choices and the supporting science. In addition, the scientific information relied upon in the development, drafting, and publication of this FEIS was properly cited and a list of references was provided. Finally, this document was reviewed by a variety of biologists, policy analysts, economists, and attorneys from the Northeast Region as well as the Headquarters office in Silver Spring, MD. In general, this team of reviewers has extensive experience with the policies and programs established for the protection of marine mammals, and specifically with the development and implementation of the ALWTRP. Therefore, this Natural Resource Plan was reviewed by technically qualified individuals to ensure that the document was complete, unbiased, objective, and relevant. This review was conducted at a level commensurate with the importance of the interpreted product and the constraints imposed by legally-enforceable deadlines.

12.8 PAPERWORK REDUCTION ACT

The collection of information for or by the Federal government – in the case of the ALWTRP regulations, the marking of fishing gear – is subject to the requirements of the Paperwork Reduction Act (PRA) of 1995. PRA establishes a process for the review and approval of information collections by the Office of Management and Budget (OMB), in an effort to minimize the paperwork burden resulting from federal information collection efforts. Pursuant to PRA, NMFS must file a separate supporting statement to OMB that requests clearance for the gear marking provisions of the final rule. In this submission, NMFS must detail the purpose, necessity, implementation methods, responses to public comments, and estimates of the time and cost burdens of the new gear marking provisions. The gear marking requirements under Alternative 6 Final (Preferred) are discussed in section 3.1.7 of this document.

12.9 EXECUTIVE ORDER 13132 - FEDERALISM

EO 13132, otherwise known as the Federalism EO, was signed by President Clinton on August 4, 1999, and published in the *Federal Register* on August 10, 1999 (64 FR 43255). This EO is intended to guide Federal agencies in the formulation and implementation of "policies that have federal implications." Such policies are regulations, legislative comments or proposed legislation, and other policy statements or actions that have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. EO 13132 requires Federal agencies to have a process to ensure meaningful and timely input by state and local officials in the development of regulatory policies that have federalism implications. A Federal summary impact statement is also required for rules that have federalism implications.

EO 13132 establishes fundamental federalism principles based on the U.S. Constitution, and specifies both federalism policy-making criteria and special requirements for the preemption of state law. For example, a Federal action that limits the policy making discretion of a state is to be taken only where there is constitutional and statutory authority for the action and it is appropriate in light of the presence of a problem of national significance. In addition, where a Federal statute does not have expressed provisions for preemption of state law, such a preemption by Federal rule-making may be done only when the exercise of state authority directly conflicts with the exercise of Federal authority. To preclude conflict between state and Federal law on take reduction plans, the Marine Mammal Protection Act explicitly establishes conditions for Federal preemption of state regulations. Furthermore, close state-Federal consultation on fishery management measures implemented under the ALWTRP is provided by the take reduction team process. The implementation of any of the alternatives considered would contain policies with federalism implications sufficient to warrant the preparation of a federalism assessment under EO 13132. Therefore, the Assistant Secretary for Legislative and Intergovernmental Affairs will provide notice of the action to the appropriate official(s) of affected state, local and/or tribal governments.

12.10 EXECUTIVE ORDER 12866

The requirements for all regulatory actions specified in EO 12866 are summarized in the following statement from the order:

> In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environment, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

The analysis meeting the above described requirements of the EO are found in the section entitled Regulatory Impact Review (RIR), which is included within this EIS in Chapter 10.

12.11 REGULATORY FLEXIBILITY ACT

The Regulatory Flexibility Act (RFA) was enacted in 1980 to place the burden on the Federal government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA emphasizes predicting significant adverse impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts while still achieving the stated objective of the action. When an agency publishes a final rule, unless it can provide a factual basis upon which to certify that no such adverse effects will accrue, it must prepare and make available for public review a Final Regulatory Flexibility Analysis (FRFA) that describes the impact of the rule on small entities. The FRFA for this action is provided in Chapter 11.

12.12 EXECUTIVE ORDER 12898 – ENVIRONMENTAL JUSTICE

The Environmental Protection Agency (EPA) defines environmental justice as, "the fair treatment for all people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies." EO 12898 was implemented in response to the growing need to address the impacts of environmental pollution on particular segments of our society. This order requires each Federal agency to achieve environmental justice by addressing "disproportionately high and adverse human health and environmental effects on minority and low-income populations." In furtherance of this objective, the EPA developed an Environmental Justice Strategy that focuses the agency's efforts in addressing these concerns. For example, to determine whether environmental justice concerns exist, the demographics of the affected area should be examined to ascertain whether minority populations and low-income populations are present, and, if so, a determination must be made as to whether implementation of the

alternatives may cause disproportionately high and adverse human health or environmental effects on these populations. Environmental justice concerns typically embody pollution and other environmental health issues, but the EPA has stated that addressing environmental justice concerns is consistent with NEPA; therefore, all Federal agencies are required to identify and address these issues. Many of the participants in the fisheries regulated under the ALWTRP may come from lower income and/or ethnic minority populations. These populations may be more vulnerable to the management measures considered in this document; however, the economic and social impact analyses performed for the FEIS suggest that a relatively small segment of regulated vessels will incur significant cost impacts relative to annual revenues. Chapter 7 describes the demographic and economic characteristics of the regions where affected vessels are based and examines the features of heavily affected vessel groups.

12.13 EXECUTIVE ORDER 13158 – MARINE PROTECTED AREAS

EO 13158 requires each Federal agency whose actions affect the natural or cultural resources that are protected by a Marine Protected Area (MPA) to identify such actions, and, to the extent permitted by law and to the extent practicable, avoid harm to the natural and cultural resources that are protected by an MPA. EO 13158 promotes the development of MPAs by enhancing or expanding the protection of existing MPAs and establishing or recommending new MPAs. The EO defines an MPA as "any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein."

Pursuant to this order, the Departments of Commerce and the Interior developed a list of MPAs that meet the definition. The Stellwagen Bank National Marine Sanctuary was classified as a MPA. In addition, four Tilefish Gear Restricted Areas in the Mid-Atlantic have been added to the National System of Marine Protected Areas: Lydonia Canyon, Norfolk Canyon, Oceanographer Canyon, and Veatch Canyon. These are the first Federal fishery management areas to become part of the national MPA system.

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15.1 GLOSSARY

Action agency: The Federal agency charged with permitting, conducting, or funding the proposed activity serving as the basis for a consultation under the Endangered Species Act.

Aldrin: An organochlorine insecticide no longer registered for use in the United States.

Algae: Single-celled or simple multi-cellular photosynthetic organisms.

ALWTRP gear: Gear that is currently or potentially subject to the requirements of the Atlantic Large Whale Take Reduction Plan.

Amortize: To repay a debt with regular payments that cover both principal and interest.

Anadromous: Fish that spawn in fresh or estuarine waters and migrate to ocean waters.

Anchored gillnet: Any gillnet gear, including a sink gillnet or stab net, that is set anywhere in the water column and which is anchored, secured or weighted to the bottom of the sea. Also called a set gillnet.

Anthropogenic: Human made.

Baleen whales: Baleen whales (also known as Mysticeti, or mustached whales) are filter feeders that have baleen, a sieve-like device used for filter feeding krill, copepods, plankton, and small fish. They are the largest whales and have two blowholes. Baleen whales include blue, fin, gray, humpback, minke, bowhead, and right whales.

Benthic: The bottom habitat of any aquatic environment.

Berried: Carrying eggs.

Bioaccumulation: The ability of organisms to retain and concentrate substances from their environment. The gradual build-up of substances in living tissue; usually used in referring to toxic substances; may result from direct absorption from the environment or through the food-chain.

Biological opinion: Under the provisions of the Endangered Species Act, an opinion prepared by the Action agency as to whether or not a proposed action is likely to jeopardize the continued existence of a listed species, or adversely modify critical habitat.

Biomagnification: Increasing concentration of a substance in successive trophic levels of a food chain.

Biomass: The total mass of living matter in a given unit area or the weight of a fish stock or portion thereof.

Biopsy: The removal of a small piece of tissue for microscopic examination.

Biotoxins: Highly toxic compounds produced by harmful algal blooms (HABs).

Bitter end: The loose end of a line that has detached from a weak link.

Bottom portion of the line: For buoy lines, the portion of the line in the water column that is closest to the fishing gear.

Breaking strength: The highest tensile force that an object can withstand before breaking.

Bridle: The lines connecting a gillnet to an anchor or buoy line.

Buoy line: A line connecting fishing gear in the water to a buoy at the surface of the water.

Bycatch: Fish that are harvested in a fishery but are not sold or kept for personal use, including economic discards and regulatory discards, but not fish released alive under a recreational catch and release fishery management program.

Carapace: The shield-like exoskeleton plate that covers at least part of the anterior dorsal surface of many arthropods.

Caudal peduncle: The stalk of a whale or fish tail that connects the tail fins to the body.

Cetaceans: Aquatic mammals, including whales.

Ciguatoxin: A toxin produced by microorganisms living in algae found in reef areas. This compound accumulates up the food chain, reaching higher concentrations in top marine predators. Ciguatoxin is not destroyed by cooking, drying, salting, or freezing.

Climate change: The term "climate change" is sometimes used to refer to all forms of climatic inconsistency, but because the Earth's climate is never static, the term is more properly used to imply a significant change from one climatic condition to another. In some cases, "climate change" has been used synonymously with the term, "global warming;" scientists, however, tend to use the term in the wider sense to also include natural changes in climate.

Compliance costs: All costs associated with adapting vessel operations to meet regulatory requirements.

Copepods: Microscopic crustaceans that are important members of the zooplankton.

Critical habitat area: The specific areas within the geographical area occupied by a threatened or endangered species, on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection.

Crustacean: Invertebrates characterized by a hard outer shell and jointed appendages and bodies. Higher forms of this class include lobsters, shrimp and crawfish; lower forms include barnacles.

Days at sea (DAS) allocation: The total days, including steaming time, that a boat is permitted to spend at sea fishing.

DDT (dichloro-diphenyl-trichloroethane): An organochlorine insecticide no longer registered for use in the United States.

Decompression sickness: A general term for all bubble-related problems arising from decompression. Decompression is the change from one ambient pressure to a lower ambient pressure that results in a reduction of gas pressures in the body.

Depleted: Under the provisions of the Marine Mammal Protection Act, any species or population stock below its optimum sustainable population as determined by the Secretary of Commerce after consultation with the Marine Mammal Commission (MMC) and the Committee of Scientific Advisors on Marine Mammals.

Dieldrin: An organochlorine insecticide no longer registered for use in the United States.

Dinoflagellates: A diverse assemblage of biflagellate unicellular organisms, which constitute an important component of marine, brackish, and fresh bodies of water.

Driftnet: A gillnet that is unattached to the ocean bottom and not anchored, secured or weighted to the bottom, regardless of whether attached to a vessel.

Effluent: Wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall.

Endangered: Any species that is in danger of extinction throughout all or a significant portion of its range.

Endocrine system: The endocrine system refers to all of the body's hormone-secreting glands. This system works in conjunction with the nervous system to control the production of hormones and their release into the circulatory system.

Entanglement: An event in the wild in which a living or dead marine mammal has gear, rope, line, net, or other material wrapped around or attached to it and is:

(a) on a beach or shore of the United States; or

(b) in waters under the jurisdiction of the United States (including any navigable waters).

Epifaunal: Animals and plants that live on the surface of the seafloor, attached to rocks or moving over the bottom.

Essential Fish Habitat (EFH): Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The EFH designation for most managed species is based on a legal text definition and geographical area that are described in the Habitat Omnibus Amendment (1998).

Eutrophication: A set of physical, chemical, and biological changes brought about when excessive nutrients are released into the water.

Exclusive Economic Zone (EEZ): A zone in which the inner boundary is a line coterminous with the seaward boundary of each of the coastal States and the outer boundary is a line 200 miles away and parallel to the inner boundary

Exotic: Plants or animals introduced into a community that are not native to the area.

$F_{0.1}$: A conservative fishing mortality rate calculated as the F associated with 10 percent of the slope at origin of the yield-per-recruit curve.

F_{MAX}: A fishing mortality rate that maximizes yield per recruit. F_{MAX} is less conservative than $F_{0.1}$.

F_{MSY}: A fishing mortality rate that would produce the maximum sustainable yield (MSY) when the stock biomass is sufficient for producing MSY on a continuing basis.

Fathom: A measure of length, containing six feet; the space to which a man can extend his arms; used chiefly in measuring cables, cordage, and the depth of navigable water by soundings.

Fecundity: Fertility or ability to reproduce.

Finfish: Bony fishes such as bass, trout, salmon, goldfish, carp, etc; does not include sharks or rays.

Fishery: The Magnuson-Stevens Fishery Conservation and Management Act defines fishery as "one or more stocks of fish which can be treated as a unit for purposes of conservation and management and which are identified on the basis of geographical, scientific, technical, recreational, and economic characteristics; and...any fishing for such stocks."

Fishery Management Plan (FMP): A plan developed by a Regional Fishery Management Council, or the Secretary of Commerce under certain circumstances, to manage a fishery resource in the U.S. EEZ pursuant to the MFCMA (Magnuson Act).

Fishing effort: the amount of time and fishing power used to harvest fish. Fishing power is a function of gear size, boat size and horsepower.

Fishing mortality (F): A measurement of the rate of removal of fish from a population caused by fishing. This is usually expressed as an instantaneous rate (F) and is the rate at which fish are harvested at any given point in a year. Instantaneous fishing mortality rates can be either fully recruited or biomass weighted. Fishing mortality can also be expressed as an exploitation rate or, less commonly, as a conditional rate of fishing mortality m, the fraction of fish removed during

the year if no other competing sources of mortality occurred. (Lower case m should not be confused with upper case M, the instantaneous rate of natural mortality.)

Float line: The rope at the top of a gillnet from which the mesh portion of the net is hung.

Food web: The complete set of food links between species in an ecosystem.

Fork length: Length of a fish measured from the tip of the snout to the posterior end of the middle caudal rays. This measurement is used instead of standard length for fishes on which it is difficult to ascertain the end of the vertebral column, and instead of total length in fish with a stiff, forked tail, e.g., tuna. Mostly used in fishery biology and not in systematics.

Full Time Equivalent Vessel (FTE): Using Federal and state data sources, the model estimates the number of commercial fishing vessels that participate in each fishery. Depending on the location and fishery, the model employs a variety of methods to estimate the number of active vessels this differs from the number of permitted vessels.

Gear conflict: Interactions between the gear employed by commercial fishing vessels, such as the severing of a buoy line by a dragger.

Gear fouling: Snagging of buoy line or ground line on the ocean floor.

Ghost fishing: Continued ability of a piece of gear to capture target and non-target species after it is lost by its tender.

Gillnet: Fishing gear consisting of a wall of webbing (meshes) or nets, designed or configured so that the webbing (meshes) or nets are placed in the water column, usually approximately vertically. Gillnets are designed to capture fish by entanglement, gilling, or wedging. The term "gillnet" includes gillnets of all types, including but not limited to sink gillnets, other anchored gillnets (e.g., stab and set nets), and drift gillnets. Gillnets may or may not be attached to a vessel. The term is intended to include gillnets with or without tiedowns. Haul/beach seines have bunt/capture bags and wings, and are therefore not considered gillnets for the purposes of the ALWTRP. North Carolina beach-anchored gillnets, which are fished from shore and report their landings as part of the haul/beach seine fishery, are also not considered gillnets for the purposes of the ALWTRP. Nearshore gillnets, which are set from small vessels just off the beach, but are not attached to the beach, are considered gillnets and are regulated under the ALWTRP.

Greenhouse gas: Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrochlorofluorocarbons (HCFCs), ozone (O_3), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Ground line: With reference to trap/pot gear, a line connecting traps in a trap trawl; with reference to gillnet gear, a line connecting a gillnet or gillnet bridle to an anchor.

Groundfish: Broadly, fish that are caught on or near the sea floor. The term includes a wide variety of bottom fishes, rockfishes, and flatfishes. However, NMFS sometimes uses the term in a narrower sense. In "Fisheries of the United States," the term applies to Atlantic and Pacific cod, hake, ocean perch, pollock, cusk, and haddock.

Growth overfishing: Fishing at an exploitation rate or at an age at entry that reduces potential yields from a cohort but does not reduce reproductive output (see recruitment overfishing).

Harmful algal blooms (HABs): The proliferation of toxic nuisance algae that cause a negative impact to natural resources or humans.

Heavy metal: A generic term for a range of metals with a moderate to high atomic weight (e.g., cadmium, mercury, lead). Although many are essential for life in trace quantities, in elevated concentrations most are toxic and bioaccumulate.

Holding power: The force an anchor can withstand before being dragged along or from the bottom.

Hydrocarbons: Organic compounds containing mainly hydrogen and carbon; the basic constituents of fossil fuels.

Injury: A wound or other physical harm. In whales, signs of injury include, but are not limited to, visible blood flow, loss of or damage to an appendage or jaw, inability to use one or more appendages, asymmetry in the shape of the body or body position, noticeable swelling or hemorrhage, laceration, puncture, or rupture of eyeball, listless appearance or inability to defend itself, inability to swim or dive upon release from fishing gear, or signs of equilibrium imbalance. Any animal that ingests fishing gear, or any animal that is released with fishing gear entangling, trailing, or perforating any part of the body is considered injured regardless of the absence of any wound or other evidence of an injury.

International Maritime Organization: The United Nations agency responsible for improving ship traffic and safety.

Isobath: Line connecting points of equal water depth on a chart; a seabed contour.

Kyoto Protocol: An international agreement struck by 159 nations attending the Third Conference of Parties (COP) to the United Nations Framework Convention on Climate Change (held in December of 1997 in Kyoto, Japan) to reduce worldwide emissions of greenhouse gases. If ratified and put into force, individual countries have committed to reduce their greenhouse gas emissions by a specified amount.

Landings: The portion of the catch that is harvested for personal use or sold.

Lead line: The rope, weighted or otherwise, to which the bottom edge of a gillnet is attached.

Limited access: Describes a fishery or permit for which a vessel must meet certain criteria by a specified "control date" to participate.

List of fisheries (LOF): A list maintained by NMFS that places each commercial fishery into one of three categories. Fisheries are categorized according to the level of serious injury and mortality of marine mammals that occurs incidental to that fishery.

Low risk gear: Gear that is highly unlikely to cause death or serious injury to entangled whales.

Marine Mammal Commission (MMC): A scientific advisory board comprised of experts that oversees the administration of the Marine Mammal Protection Act.

Marine Mammal Protection Act (MMPA): An Act passed by the United States Congress in 1972 that prohibits the hunting, killing, harassing, or injuring of marine mammals by any person under U.S. jurisdiction; limited exceptions apply.

Maximum Sustainable Yield (MSY): The largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological and environmental conditions.

Metric ton: A unit of weight equal to a thousand kilograms (1kg. = 2.205 lb.). A metric ton is equivalent to 2,205 lb. A thousand metric tons is equivalent to 2.205 million lbs.

Model vessel: Representative of a group of vessels that share similar operating characteristics and would face similar requirements under a given regulatory alternative.

Molting: The regular shedding of an outer body covering such as fur, skin, feathers, or, in the case of crustaceans, a shell.

Monofilament: A twine composed of a single yarn.

Multispecies: The group of species managed under the Northeast Multispecies Fishery Management Plan. This group includes whiting, red hake and ocean pout plus the regulated species (cod, haddock, pollock, yellowtail flounder, winter flounder, witch flounder, American plaice, windowpane flounder, white hake and redfish).

Natural mortality: A measurement of the rate of death from all causes other than fishing, such as predation, disease, starvation, and pollution.

Necrosis: Localized death of tissue.

Neonate: A newborn baby in the first few months of life.

Net panel: Sheet of netting often comprising two or more sections joined together.

Net string: A series of two or more net panels linked together by lines, surface lines, and buoys being placed at intervals, or at the first and last net panel.

Neutrally buoyant line: Line with a specific gravity near that of sea water, so that the line neither sinks to the ocean floor nor floats at the surface, but remains close to the bottom.

Night: Any time between one-half hour before sunset and one-half hour after sunrise.

No action alternative: The status quo, i.e., the baseline set of ALWTRP requirements currently in place.

Nonpoint source: A pollution source that cannot be defined as originating from discrete points such as pipe discharge. Areas of fertilizer and pesticide applications, atmospheric deposition, manure, and natural inputs from plants and trees are types of nonpoint source pollution.

Notice of intent: A statement published by NMFS alerting the public to a forthcoming action.

Observer: any person required or authorized to be carried on a vessel for conservation and management purposes by regulations or permits under the MSA.

Odontocetes: The sub-order of whales that includes toothed-whales.

Offal: Dead and discarded catch and fish by-catch.

Ongoing costs: All costs related to gear modifications that fishermen would incur on an annual basis following full implementation of new ALWTRP requirements.

Open access: Describes a fishery or permit for which there are no qualification criteria to participate.

Optimum sustainable population (OSP): The number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element.

Optimum Yield (OY): The amount of fish which A) will provide the greatest overall benefit to the nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems; B) is prescribed as such on the basis of the maximum sustainable yield from the fishery, as reduced by any relevant economic, social, or ecological factor; and C) in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the maximum sustainable yield in such fishery.

Organochlorine: Synthetic organic compounds containing chlorine. As generally used, refers to compounds containing mostly or exclusively carbon, hydrogen, and chlorine. Examples include organochlorine insecticides, polychlorinated biphenyls, and some solvents containing chlorine.

Organotins: Chemical compounds used in anti-foulant paints to protect the hulls of boats and ships, buoys, and pilings from marine organisms such as barnacles.

Overfished: A conditioned defined when stock biomass is below minimum biomass threshold and the probability of successful spawning production is low.

Overfishing: A level or rate of fishing mortality that jeopardizes the long-term capacity of a stock or stock complex to produce MSY on a continuing basis.

Ovigerous: Lobsters that are carrying eggs; egg-bearing lobsters.

Pelagic: A term to describe fish that spend most of their life swimming in the open sea with little contact with or dependency on the ocean bottom.

Phase-in costs: The incremental gear conversion costs that fishermen would incur between promulgation of a final rule and full implementation of the rule's provisions several years later.

Phocoenid: A member of the porpoise family.

Phytoplankton: Microscopic marine plants or algae, which are responsible for most of the photosynthetic activity in the oceans.

Pinnipeds: A suborder of carnivorous marine mammals that includes the seals, walruses, and similar animals using finlike flippers for propulsion.

Planktivorous: Feeding on planktonic organisms.

Poaching: The illegal hunting or taking of wildlife out of its natural habitat.

Point source: A single identifiable source that discharges pollutants into the environment. Examples are smokestack, sewer, ditch, or pipe.

Polychlorinated biphenyls (PCBs): A group of industrial chemicals (of the chlorinated hydrocarbon class) that are commonly used and have become serious and widespread pollutants. They are extremely resistant to breakdown and have contaminated most of the earth's food chains, resulting in biomagnification at higher trophic levels. Known to cause cancer.

Potential biological removal (PBR): Maximum number of animals, not including mortalities, that can be removed from a stock while allowing that stock to reach its OSP.

Prey availability: The availability or accessibility of prey (food) to a predator. Important for growth and survival.

Profile: The outline of fishing line in the water column, i.e., the amount of line that lies in the water column.

Protected Species: As used in this document, protected species refers to any species protected by either the ESA or the MMPA, and which is under the jurisdiction of NMFS. This includes all threatened, endangered, and candidate species, as well as all cetaceans and pinnipeds excluding walruses.

Qualified individual: An individual ascertained by NMFS to be reasonably able, through training or experience, to identify a right whale. Such individuals include, but are not limited to, NMFS staff, U.S. Coast Guard and Navy personnel trained in whale identification, scientific research survey personnel, whale watch operators, naturalists, and mariners trained in whale species identification through disentanglement training or some other training program deemed adequate by NMFS.

Quota: A pre-determined total catch of a particular species allowed to be harvested in a season.

Reasonable and prudent alternatives: Alternative actions identified during a formal ESA consultation that (1) can be implemented in a manner consistent with the intended purpose of the action; (2) can be implemented consistent with the scope of the Action agency's legal authority and jurisdiction; (3) are economically and technically feasible; and (4) avoid the likelihood of jeopardizing the continued existence of listed species or resulting in the destruction or adverse modification of critical habitat.

Recovery factor: A factor used in calculating PBR. It accounts for endangered, depleted, or threatened stocks or stocks of unknown status relative to OSP.

Recruitment: The amount of fish added to the fishery each year due to growth and/or migration into the fishing area. For example, the number of fish that grow to become vulnerable to fishing gear in one year would be the recruitment to the fishery. “Recruitment” also refers to new year classes entering the population (prior to recruiting to the fishery).

Recruitment overfishing: Fishing at an exploitation rate that reduces the population biomass to a point where recruitment is substantially reduced.

Scarification analysis: An analysis to determine the cause or potential causes for scars found on a whale's body.

Section 7 consultation: The consultation with the Secretary of Commerce that occurs when a proposed Federal action may affect an ESA-listed marine species.

Serious injury: Any injury that is likely to result in mortality.

Ship strike: A collision between a ship and a whale.

Sink gillnet or stab net: Any gillnet, anchored or otherwise, that is designed to be, or is fished on or near the bottom in the lower third of the water column.

Sinking line: rope that sinks and does not float at any point in the water column. Polypropylene rope is not sinking unless it contains a lead core.

Sound pressure level (SPL): The basic measure of noise loudness, expressed in decibels.

Spawning stock biomass (SSB): The total weight of fish in a stock that are old enough to reproduce.

Species: As defined in the Endangered Species Act (ESA), a species, a subspecies, or, for vertebrates only, a distinct population.

Specific gravity: The ratio of the mass of a solid or liquid to the mass of an equal volume of distilled water at 4°C (39°F). Also called relative density.

Splice: A joint made by interweaving strands of line together.

Standard length: The measurement from the most anterior tip of the body to the midlateral posterior edge of the hypural plate (in fish with a hypural plate) or to the posterior end of the vertebral column (in fish lacking hypural plates).

Stock: A grouping of fish usually based on genetic relationship, geographic distribution and movement patterns. A region may have more than one stock of a species (for example, Gulf of Maine cod and Georges Bank cod). A species, subspecies, geographical grouping, or other category of fish capable of management as a unit.

Stock assessment: Study to determine the number (abundance/biomass) and status (life-history characteristics, including age distribution, natural mortality rate, age at maturity, fecundity as a function of age) of individuals in a stock.

Straight set: The deployment of gillnet in a straight line, as opposed to the deployment of gillnet in a circular manner, for example, around a school of fish.

Stranding: An event in which a marine mammal is dead on a beach, shore, or waters under U.S. jurisdiction; or alive on a beach or shore and unable to return to the water or in need of medical attention, or in waters under U.S. jurisdiction and unable to return to its natural habitat without assistance.

Strategic stock: Under the provisions of the MMPA, a marine mammal stock for which the level of direct human-caused mortality exceeds the potential biological removal level (PBR). Stock which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA of 1973 in the foreseeable future; or which is listed as a threatened species or endangered species under the ESA of 1973; or is designated as depleted under the MMPA.

Strikenet: A gillnet that is designed so that, when deployed, it encircles or encloses an area of water either with the net or by utilizing the shoreline to complete encirclement.

Subsistence whaling: The catching of whales by indigenous people for local consumption.

Substrate: Ocean floor.

Take: As defined in the Marine Mammal Protection Act (MMPA), to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.

Territorial waters: Waters generally extending three nautical miles from shore in which the state has jurisdiction.

Threatened: Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Tie loops: The loops on a gillnet panel used to connect net panels to the buoy line, groundline, bridle or each other.

Toggle: A small buoy used to keep a net or line upright in the water column.

Total allowable catch (TAC): Value calculated by applying a target fishing mortality rate to exploitable biomass.

Total length: A fish's greatest length, as measured from the most anterior point of the body to the most posterior point, in a straight line, not over the curve of the body.

Trawl: A series of three or more pots linked together by lines, surface lines, and buoys being placed at intervals, or at the first and last pot.

Trophic level: The position of a species in a food chain, indicating its level of energy transfer in the ecosystem.

Turbidity: A measurement of the extent to which light passing through water is reduced due to suspended materials; relative water clarity.

Turtle excluder device (TED): An adaptation to a commercial shrimp net that permits caught sea turtles to escape.

Up and down lines: The line that connects the floatline and leadline at the end of each net panel.

Useful life: Under typical circumstances, the length of time a piece of gear can be used before replacement is necessary.

Vessel Monitoring System (VMS): Wireless information system that automatically reports fishing vessel position and activity to NMFS.

Vertical Line: Synonymous with buoy line, a line connecting fishing gear in the water to a buoy at the surface of the water

Water column: The open ocean environment that lies between the surface and the sea floor.

Weak link: A breakable component of gear that will part when subject to a certain tension load.

Wet storage: Leaving gear in the water for extended periods of time. ALWTRP regulations prohibit wet storage (i.e., require that lobster traps and anchored gillnet gear must be hauled out of the water at least once every 30 days).

Zero mortality rate goal: The requirement for commercial fisheries to reduce incidental mortality and serious injury of marine mammals to insignificant levels approaching a zero mortality and serious injury rate, as identified in the MMPA. An insignificance threshold has been established as 10 percent of the Potential Biological Removal (PBR) of a stock of marine mammals (See 69 FR 43338 for further details).

Zooplankton: *See Phytoplankton*. Small, often microscopic animals that drift in currents. They feed on detritus, phytoplankton, and other zooplankton. They are preyed upon by fish, shellfish, whales, and other zooplankton.

15.2 ACRONYMS

ALWTRP	Atlantic Large Whale Take Reduction Plan
ALWTRT	Atlantic Large Whale Take Reduction Team
AOCTRP	Atlantic Offshore Cetacean Take Reduction Plan
ASMFC	Atlantic States Marine Fisheries Commission
ATOC	Acoustic Thermometry of Ocean Climate
BDTRP	Bottlenose Dolphin Take Reduction Plan
CC	Cape Cod
CEA	Cumulative Effects Analysis
CEQ	Council on Environmental Quality
CETAP	Cetacean and Turtle Assessment Program
CFR	Code of Federal Regulations
CHA	Critical Habitat Area
COLREGS	Demarcation Line for the International Regulations for Preventing Collisions at Sea, 1972
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DAM	Dynamic Area Management
DAS	Days at Sea
DDT	Dichloro Diphenyl Trichloroethane
DEIS	Draft Environmental Impact Statement
DHRA	Dedicated Habitat Research Areas
DMR	(Maine) Department of Marine Resources
DPS	Distinct Population Segment
DSEIS	Draft Supplemental Environmental Impact Statement
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act of 1973
EWS	Early Warning System
F	fishing mortality
FA	fathoms
FEIS	Final Environmental Impact Statement
FMP	Fishery Management Plan
FR	Federal Register
FRFA	Final Regulatory Flexibility Analysis
FSEIS	Final Supplemental Environmental Impact Statement
FTE	Full Time Equivelent
FWS	Fish and Wildlife Service
FY	Fishing Year
GB	Georges Bank
GBS	Georges Bank and South
GMFMC	Gulf of Mexico Fishery Management Council

GOM	Gulf of Maine
GRT	gross register tons
HAB	Harmful Algal Blooms
HAPC	Habitat Areas of Particular Concern
HCH	Hexachlorocyclohexane
HMS	Highly Migratory Species
HPTRP	Harbor Porpoise Take Reduction Plan
ICES	International Council for the Exploration of the Sea
IMO	International Maritime Organization
IRFA	Initial Regulatory Flexibility Analysis
ISFMP	Interstate Fishery Management Plan
ITQ	individual transferable quota system
ITS	Incidental Take Statement
IUCN	International World Conservation Union
IWC	International Whaling Commission
LCMA	Lobster Conservation Management Area
LCMT	Lobster Conservation Management Teams
LCS	Large Coastal Sharks
LIS	Long Island Sound
LMA	Lobster Management Area
LOF	List of Fisheries
MAFMC	Mid-Atlantic Fishery Management Council
MBDS	Massachusetts Bay Disposal Site
MCZM	Massachusetts Coastal Zone Management
MMC	Monkfish Monitoring Committee
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
MPRSA	Marine Protection, Research, and Sanctuaries Act
MSA	Magnuson-Stevens Act of 1976
MSR	Mandatory Ship Reporting
MSY	maximum sustainable yield
MT	metric tons
NAO	NOAA Administrative Order
NATO	North Atlantic Treaty Organisation
NEFMC	New England Fishery Management Council
NEFSC	Northeast Fisheries Science Center
NEOP	Northeast Fisheries Observer Program
NEPA	National Environmental Policy Act of 1969
NERO	(NMFS) Northeast Regional Office
NFMA	Northern Fishery Management Area
NGO	Non-Governmental Organization
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NRC	National Research Council
NRDC	Natural Resource Defense Council

OCS	Outer Continental Shelf
OPA	Oil Pollution Act
OSP	Optimum Sustainable Population
OTP	Other Trap/Pot
OY	Optimum Yield
PBB	Polybrominated Biphenyls
PBDE	Polybrominated diphenyl ethers
PBR	Potential Biological Removal
PCB	Polychlorinated Biphenyl
PCDF	Polychlorinated Dibenzo Furan
PCN	Polychlorinated Napthalenes
PPRFFAs	Past, Present, and Reasonably Foreseeable Future Actions
RFA	Regulatory Flexibility Act
RFMC	Regional Fishery Management Councils
RIR	Regulatory Impact Review
SAFE	Stock Assessment and Fishery Evaluation
SAFMC	South Atlantic Fishery Management Council
SAM	Seasonal Area Management
SAR	Stock Assessment Report
SARC	Stock Assessment Review Committee
SAS	Sighting Advisory System
SCCLIS	South of Cape Cod to Long Island Sound
SCS	Small Coastal Sharks
SEFSC	Southeast Fisheries Science Center
SERO	(NMFS) Southeast Regional Office
SEUS	Southeast United States
SFMA	Southern Fishery Management Area
SIA	Social Impact Assessment
SL	Standard Length
SNE	Southern New England
SOFA	Southern Offshore Fishing Association
SPL	Sound Pressure Level
SPR	Spawning Potential Ratio
SSB	spawning stock biomass
STSSN	Sea Turtle Stranding & Salvage Network
SURTASS LFA	Surveillance Towed Array Sensor System Low Frequency Active
TAC	total allowable catch
TED	Turtle Excluder Device
TEWG	Turtle Expert Working Group
TL	Total Length
TRP	Take Reduction Plan
TSS	Traffic Separation Scheme
USCG	United States Coast Guard
VEC	Valued Ecosystem Component
VMS	Vessel Monitoring System
VTR	Vessel Trip Report

WNA	Western North Atlantic
WTP	willingness to pay
YONAH	Years of the North Atlantic Humpback

15.3 INDEX

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FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR
AMENDING THE
ATLANTIC LARGE WHALE
TAKE REDUCTION PLAN:

VERTICAL LINE RULE

VOLUME II of II



Photo Courtesy of David Wiley

National Marine Fisheries Service
National Oceanic and Atmospheric Administration
DEPARTMENT OF COMMERCE

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Draft EIS: July 2013
Final EIS: May 2014

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RESPONSE TO COMMENTS ON THE DEIS AND PROPOSED RULE CHAPTER 1

NMFS received 533 letters from commenters on the Draft Environmental Impact Statement (DEIS) and proposed rule via Regulations.gov, letter, fax, or email. Additionally, two form letters were received on the DEIS via letter and email; approximately 27,500 of one form letter, 13,500 of another form letter, and approximately 1,300 slight variations to the form letters. NMFS also solicited comments on the DEIS during 16 public hearings held along the Atlantic coast. The public hearings were held as follows:

- Machias, Maine on August 5, 2013
- Ellsworth, Maine on August 6, 2013
- Rockland, Maine on August 7, 2013
- Portland, Maine on August 8, 2013
- Chatham, Massachusetts on August 13, 2013
- Plymouth, Massachusetts on August 14, 2013
- Narragansett, Rhode Island on August 15, 2013
- Gloucester, Massachusetts on August 19, 2013
- Portsmouth, New Hampshire on August 20, 2013
- Wilmington, North Carolina on August 26, 2013
- Virginia Beach, Virginia on August 27, 2013
- Manahawkin, New Jersey on August 28, 2013
- Ormond Beach, Florida on September 9, 2013
- Jacksonville, Florida on September 10, 2013
- Brunswick, Georgia on September 11, 2013
- Charleston, South Carolina on September 12, 2013

The substantive comments are summarized and grouped below by major subject headings. NMFS' response follows each comment. NMFS received technical comments on the DEIS that were not substantive, and incorporated such changes in the FEIS as appropriate. These technical comments are not listed in the summary.

1.1 COMMENTS AND RESPONSES

1.1.1 General Comments

Comment 1: One commenter stated that the proposed measures should be extended to the recreational fishermen and not just commercial fishermen.

Response: The regulations implementing the Plan are governed by Section 118 of the MMPA, which requires take reduction teams to assist NMFS in the development of take reduction plans that address serious injuries and mortalities of marine mammals that interact with commercial fishing operations. Therefore, the proposed measures are specific to commercial fishing only. However, recreational fishers that take marine mammals are in violation of the MMPA prohibition against taking marine mammals. NMFS has created brochures designed to inform recreational fishermen about protected species conservation.

Comment 2: Two commenters requested that the 60-day public comment period be extended.

Response: Public comment periods are required to be at least 15 days. NMFS believes that the 60-day comment period was adequate and chose not to extend the time period.

Comment 3: One commenter stated that the proposed regulations should consider the shifting baseline in the marine food chain as a result of climate change and eutrophication. Right whale prey distribution is changing in time and place and management should be adapted to account for these shifts. The commenter suggested that the status quo approach be supplemented with dynamic solutions using an ecosystem approach for management.

Response: NMFS acknowledges this important comment. Managing resources in the face of changing environmental conditions is challenging. The ability to account for distribution shifts that may result from changing environmental conditions exist in the current regulations. These regulations can be found at §229.32 (i)(2). Among other considerations, should NMFS determine that right whale distribution shifts result in its current conservation measures being no longer appropriate, NMFS has the ability to make changes to the measures.

Comment 4: A few commenters stated that they have never seen a whale in state waters and thus it was unfair to propose new laws in areas without whales.

Response: Because most large whale entanglements (particularly those involving right whales) tend to be free swimming entanglements when detected and the gear recovered from these entanglements do not provide adequate information to determine where an entanglement occurred, entanglements from specific fisheries and areas are rarely documented. Therefore, NMFS developed a model to help identify the relative likelihood of an entanglement by time and area. The model is based on high "co-occurrence areas" which are areas that have the highest frequency of gear that overlap with large whale

sightings per unit effort. NMFS believes that these high co-occurrence areas represent a higher likelihood of entanglement to large whales. Areas identified as a high co-occurrence area may be subject to conservation measures regardless if a take has not been documented in that area.

Comment 5: Some commenters stated that the entanglement risk to right and other large whales is greater in areas outside of the Southeast U.S. Atlantic and that there have been no documented cases of black sea bass or blue crab gear on a right whale. Some commenters also noted that fewer trap/pots are set in the Southeast relative to northern regions (including Canada) and that gear in the Southeast is lighter, uses shorter vertical lines, and is therefore less risky to whales than trap/pot gear found further north.

Response: The annual Stock Assessment Report (SAR) partition out entanglement records between U.S. and Canadian waters for large cetacean species. Currently, in the 2012 SAR (Waring et. al 2013) the average number of annual fishery entanglements of right whales was 1.6 in U.S. waters and 0.2 in Canadian waters. The potential biological removal for this species is calculated at 0.9. Thus, even when considering only entanglements from U.S. fisheries, right whales are being taken at too great of a rate to maintain optimal population sustainability. Furthermore, gear removed from right whales is not always identified to a specific fishery; however, in cases where the gear could be identified, more rope was associated with trap/pot gear than gillnet gear (Johnson et al. 2005).

The vertical line model utilized by NMFS and the Team for the development of this rule focused on areas of high co-occurrence of vertical lines associated with commercial trap/pot and gillnet gear and large whale sighting per unit effort data. The analysis of these data indicated that co-occurrence was relatively low within the Southeast Restricted Area North during the right whale season. Consequently, NMFS did not propose a closure throughout the Southeast Restricted Area North or critical habitat area. However, the gear is not risk-free, which is why NMFS is implementing other risk reduction measures through this final rule. Also, see Response to Comment 40.

Comment 6: One commenter stated that before taking further action NMFS should provide fishermen with statistical significance and a five year period by which to assess the major April 2009 implementation requiring fishermen to change their floating groundline to sinking groundline.

Response: At its 2003 meeting, by consensus, the Team agreed to two overarching principles associated with reducing large whale entanglement risks: 1) Reducing entanglement risks associated with groundlines in commercial trap/pot gear; and 2) Reducing entanglement risks associated with vertical lines. The Team agreed to focus first on addressing the groundline entanglement risk, which completed in October 2007 (72 FR 57104, October 5, 2007), followed by the development and implementation of a vertical line rule. This rule addresses the entanglement risk identified by the Team to large whales from vertical lines. This rule completes the two pronged strategy identified by the Team to address the large whale entanglements in commercial trap/pot and gillnet gear. Under the MMPA the number of deaths or serious injuries due to commercial fishing activities must not affect a species ability to reach or maintain its optimum sustainable population. At

present, with just the sinking groundline conservation measures in place, the number of serious injuries and mortalities for right whales and humpback whales remain above mandated levels and mortalities due to entanglements in vertical lines in trap/pot and gillnet gear continue to occur.

NMFS, in consultation with the Team, has developed a monitoring strategy to evaluate industry compliance with the Plan and the effectiveness of the Plan in achieving the plan's goals and objectives. For more information on the monitoring strategy, please see the response to Comment 8.

Comment 7: A few commenters suggested that NMFS move forward with one measure to reduce interactions at a time in a phased in type approach. It was suggested that NMFS should just increase the number of traps per trawl before proposing closures or just move forward with the increased gear marking at this time and then once the problem areas are identified come back with management measures targeting those problem areas.

Response: NMFS appreciates the suggestion but believes that the combination of management measures in the final rule is necessary to achieve the goals mandated by the MMPA and ESA.

Comment 8: A few commenters were concerned that there was a lack of strategy if entanglement levels continued to exceed PBR regardless of the proposed measures. The commenters stated that whales could continue to experience high levels of entanglement than legally allowed with no recourse.

Response: On February 23-24, 2009, NMFS convened an internal workshop to discuss the development of a comprehensive monitoring strategy for the Plan. The goal of this workshop was to develop an outline for a monitoring strategy that included components to review compliance with and to assess the effectiveness of the Plan regulations in achieving the MMPA short- and long-term goals of reducing serious injury and mortality of large whales in U.S. commercial fisheries. This monitoring strategy was shared with the Team and went into effect in August 2012. This strategy includes both annual monitoring reports and a multi-year status summary intended to review the Plan's effectiveness and compliance over a 5-year timeframe. If analyses determine that the Plan is not achieving its goals, NMFS will review the multi-year status summary to evaluate the potential causes for not achieving the management objectives and consult with the Team on the development of appropriate actions to address the Plan's shortcomings.

Comment 9: One commenter requested that the preamble to the rule and FEIS include a discussion that more accurately reflects decisions reached by the Team with respect to the rulemaking timeline.

Response: NMFS disagrees with the commenter's assessment that the discussion of the rulemaking timeline is not accurately reflected. NMFS believes that the proposed rule's preamble and EIS reflect the Team discussions at past meetings about the need to move forward with a Vertical Line rule and the timeline to develop and implement the rule. The text in the preamble and EIS is consistent with summaries from the Team's meetings.

Comment 10: Several commenters stated that there are too many unanswered questions that need to be answered before expanding new policies. They requested that the northeast portion of the rule be reconsidered until better information exists regarding what part of the line is entangling whales and what the economic impact of the changes will be on the industry.

Response: The FEIS notes that entanglements of large whales are still occurring and highlights the legal mandates of the MMPA and ESA that NMFS is required to follow. Based on the continued serious injury and mortality of large whales NMFS must take action to provide more protection to large whales. Although NMFS acknowledges the need for more scientific information, NMFS is required to take action based on the best information that is available when developing the EIS. The economic impact of this action is discussed in the EIS. As new information becomes available regarding large whales, entanglements, or economic impacts of these policies NMFS will share this information with the Team to determine if additional changes to the Plan are warranted.

Comment 11: One commenter stated that there is a lack of data and the data that is available is often flawed.

Response: See Response to Comment 10.

Comment 12: A few commenters commented that NMFS fails to link the proposed measures to a reduction in serious injury/mortality. The commenter stated that although a reduction in risk does not necessarily equate to the same level of reduction in serious injury/mortality it provides some basis for meeting the PBR goals. The rule should meet a 50% reduction standard or provide explanation for how the rule will reduce the levels of serious injury/mortality to below PBR.

Response: Sufficient information is not available on when, where, and how entanglements occur such that a quantifiable line reduction target can be calculated. Therefore, NMFS and the Team have not determined a percent reduction of vertical lines that would reduce serious injury and mortality of large whales that encounter vertical lines to a level that would achieve the MMPA's PBR and ZMRG mandates. NMFS used the best information that is available and worked with commercial trap/pot and gillnet fishermen and other stakeholders to develop feasible conservation measures intended to achieve the goals and objectives of the Plan and MMPA. The preferred alternative achieves a 38% reduction in co-occurrence coastwide. NMFS believes this level of reduction is consistent with the goals and objectives of the MMPA and ESA.

Comment 13: In response to the request to comments on the proposed changes to the 'other special measures' provision one commenter agreed that the Team must be consulted but the consultation must involve dialogue. The commenter questioned if the provision agreed with the MMPA since the MMPA specifically provides NMFS with authority to take emergency actions to promote conservation.

Response: NMFS appreciates the support for the change to the provision. The provision and the MMPA emergency regulations are different and have their own requirements. The "Other Special Measures" provision is not intended to address NMFS' ability to take emergency actions, rather it allows NMFS make changes to the Plan as new information about gear marking, gear technology, or right whale distribution in closed areas becomes available. The final rule will include language to ensure that the Team is consulted with prior to actions being taken under the 'other special measures' provision.

1.1.2 General Comments on Proposed Alternatives

Comment 14: Many people stated their general support for the Preferred Alternative stating that the level of serious injury and mortality is above PBR and therefore additional management measures are necessary.

Response: NMFS acknowledges this comment and agrees that additional management measures are necessary.

Comment 15: Numerous people stated their support for the No Action Alternative referring to the increasing right whale population as a sign that the current management measures are working and additional measures are not necessary.

Response: NEPA requires NMFS to analyze a no action alternative. NMFS did not choose this alternative in its final rule because it does not meet the goals and objectives of the Plan and therefore does not satisfy the requirements of the MMPA or ESA. Although the right whale population has increased in recent years the number of serious injury and mortalities occurring as a result of entanglement in commercial fishing gear is still at an unstainable level. NMFS has determined that additional measures included in this action are necessary to meet the objectives of the MMPA and ESA.

Comment 16: One commenter stated that the proposed alternative would require fishermen to spend more money on weak links and sinking rope and fishermen can't afford to spend more money.

Response: NMFS is sensitive to the costs of complying with this final rule and characterized the economic and social impacts in the FEIS. Chapter 7 of the FEIS identifies the vessels segments that may be heavily affected by the new requirements. Based on the comments received during the public comment period and public hearings, the preferred alternative was chosen because it provided an adequate conservation benefit to large whales while having a lower economic cost to industry.

Comment 17: One commenter agreed that reducing vertical line offshore is a good thing to do as there are more whales offshore so the rules should be made to account for this.

Response: NMFS agrees with this comment and the final rule includes measures for vessels fishing offshore.

Comment 18: A handful of commenters provided general comments about the Southeast U.S. portion of the proposed rule: 1) the proposed rule contained a patchwork of requirements within the currently designated critical habitat that are inconsistent and arbitrary, 2) the various requirements would make it difficult for fishermen to comply and law enforcement officials to enforce, and 3) the presence of neophyte calves in Florida state waters were NMFS' basis for requiring weak links and ropes with lower breaking strengths in that area, but these same "neophytes" are born further to the north where breaking strengths are far higher (and presumably create higher risk). Many of these commenters were also concerned that proposed measures in the Southeast largely retain the status quo and do not reduce risk to right whales, especially for mother/calf pairs.

Response: This rule provides additional protection to right whales by focusing management measures in areas of elevated co-occurrence of whales and vertical lines. First, NMFS believes the various requirements provide protection for right whales while avoiding unnecessary impact to fisheries. Second, NMFS did not receive any comments about difficulties associated with compliance or enforcement from fishermen or law enforcement officials. Third, NMFS is particularly cognizant of the weaker physical characteristics of neophyte calves, which most often occur in the Southeast U.S. Neophyte calves are occasionally documented off North Carolina and Cape Cod Bay, Massachusetts; however, the highest co-occurrence of very young right whale calves and vertical lines is in Florida state waters and where the trap/pot gear modifications in this rule are the most risk averse.

Finally, NMFS agrees that some of the Southeast measures in this final rule codify the status quo regarding existing fishing gear and techniques. In those instances, the present gear/practice is appropriately risk averse and codified those practices to ensure the gear does not become riskier to whales in the future. However, other measures such as requiring object-free lines, sinking vertical lines, returning gear to port from federal waters, and additional gear marking are all new measures that reduce entanglement risks to right whales, including mother/calf pairs.

Comment19: One commenter supported customizing management measures to specific high priority areas rather than using wide-scale broad management; this commenter thought that applying the same management measures to the area from North Carolina all the way down to Florida to the 29 latitude line isn't a customized plan. Another commenter stated that the SERA N is a huge area and that they fish in only a small portion of that area and requested a "secondary boundary" that would allow him to fish for blue crab in Federal waters.

Response: NMFS is defining the Southeast Restricted Area North as a trap/pot management areas so that the southeast U.S. measures in this rule apply to the same management area used for gillnet fisheries. This helps reduce and streamline the number of management areas while providing protection for right whales. However, new information on right whale distribution does exist since when the Southeast Restricted Area North gillnet area was established. This new information is currently being evaluated. , Should NMFS will determine that the Southeast Restricted Area North and South boundaries should be adjusted, it will do so in consultation with the Team as part of a future rulemaking.

Comment 20: Some commenters suggested that all states should have the same protections coastwide paying special attention to areas and seasons where right whales feed and give birth.

Response: NMFS, in consultation with the Team, chose not to implement a broad-based management scheme as it had done in the past. Instead, NMFS and the Team developed a model to help compare the relative likelihood of entanglements occurring across areas and seasons. NMFS utilized these high co-occurrence areas as a proxy for high risk of entanglement to large whales. The management measures are intended to provide the same protection to areas of high co-occurrence regardless of if the measures differ from state to state. There are regional differences in fishing practices that influence fishing techniques and NMFS tried to account for the differences in techniques when developing the rule.

Comment 21: Two commenters stated they did not support making splicing line illegal. It would be impossible to make buoy lines without splices.

Response: NMFS agrees and did not intend to suggest that splicing line would be illegal. This will be clarified in the final rule.

Comment 22: One commenter agreed that there is insufficient data in the mid-Atlantic to propose management measures at this time. The commenter supports efforts to assess whale distribution in this area and if high co-occurrence areas are identified later on then fisheries should be managed.

Response: NMFS agrees that there are fewer whale sighting data in the mid-Atlantic than in other regions. For that reason, NMFS has undertaken efforts to consolidate data and information on right whale distribution and use of the mid-Atlantic. Once these efforts are completed, NMFS will assess all of its mid-Atlantic large whale-related management measures relative to the new information.

Comment 23: One commenter requested that NMFS add another alternative that assesses the impacts of the closures without the proposed increase in number of traps per trawl.

Response: During the development of the alternatives, NMFS and the Team did discuss utilizing only closures. However, preliminary analysis indicated that the closure-only strategy would not afford enough protection to large whales to satisfy the requirements of the MMPA and ESA. Further, NMFS believes that the number of alternatives analyzed in the EIS was adequate. The alternatives analyzed were a combination of stakeholder proposals developed by the Team during the course of several meetings and the result of input received during the public scoping meetings.

Comment 24: One commenter stated that fishing effort in the Gulf of Maine lobster fishery may have exceeded capacity and the fishing effort could be reduced without significantly impacting lobster catch. Reducing effort would reduce entanglement risk but

the proposed rule sidesteps the issue of effort reduction and it is unclear how effective the rule would be at reducing entanglements.

Response: NMFS acknowledges that effort reduction through limits on the number of trap/pot gear utilized by fishermen has taken place. However a reduction in traps does not necessarily equate to a reduction in the number of vertical lines in the water column. During the comment period NMFS requested comments on how best to quantify potential future trap reductions or increases with respect to how many vertical lines could be reduced. NMFS did not receive any substantive comments addressing this issue.

Comment 25: A few commenters felt that the proposed rule did not address latent effort and the potential for more gear to be in the water in the future.

Response: NMFS realizes that potential effort reductions or increases in future fishing effort could reduce or increase the number of vertical lines in the water column. During the comment period NMFS requested suggestions for how best to quantify potential future trap reductions or increases with respect to how many vertical lines could be reduced or increased. NMFS did not receive any quantifiable responses. NMFS intends to monitor this issue as part of the Plan's monitoring strategy (see response to Comment 8).

Comment 26: NMFS received many comments on the proposal to require trap/pot gear fished in Southeast Restricted Area North (SERA N) federal waters be brought back to port at the end of a fishing trip. SCDNR and several individuals from Georgia and South Carolina commented that a small number of blue crab fishermen with larger boats may set traps in both state and federal waters (up to 12 miles offshore) in years when coastal water temperatures may be cooler than normal and crabs move farther out of the estuaries and into the ocean. This seasonal fishing activity is extremely important economically to the relatively few fishermen who can participate in this aspect of the fishery, particularly since winter is the high-dollar season for blue crab. These commenters stated that the requirement to return all traps to shore at the end of the day would, at minimum, greatly hamper the efficiency and cost effectiveness of fishermen, but more likely would create a closure of the blue crab fishery in federal waters and cause an economic hardship on fishermen. One commenter supported the requirement to return gear to port at the conclusion of each fishing trip because it represented a de facto seasonal closure in federal waters for trap/pot fisheries that required long soak times and would prevent trap/pot effort from encroaching into federal waters where whale density is high. One commenter thought there were multiple ways to interpret the meaning of "the conclusion of each fishing trip" and was curious about how enforcement officials would interpret the phrase.

Response: NMFS is concerned about the risk to right whales from trap/pot gear in SERA N federal waters because fishermen use longer vertical lines with a higher breaking strength. These factors increase the risk from entanglement to right whales because longer lines mean more line that whales may encounter and higher breaking strength means a whale, particularly, calves, are less likely to break free of gear once they become entangled. Additionally, all other things equal, long-soak gear represents a greater opportunity for entanglement than short-soak gear. Right whales, including calves, occur in federal waters

off the coasts of South Carolina and Georgia, from November through April. The measures in this rule reduce risk to right whales from entanglement in federal waters by specifying a 2,200 lb maximum breaking strength of vertical lines and reducing the exposure of gear to right whales by requiring gear be returned to port at the end of a fishing trip.

Based on fishermen's comments, we recognize that this measure will likely eliminate blue crab fishing effort in federal waters in the winter because deploying trap/pots for only a short period of time (period of hours) is not effective at catching blue crabs. However, according to comments, the majority of blue crab fishermen do not fish in federal waters. Consequently, this requirement will likely impact only a small proportion of fishermen and only during cold winters when blue crabs are reportedly found further offshore. NMFS believes that the majority of fishermen in the blue crab fishery will be largely unaffected by this rule because they will still be able to fish in state waters where the majority of blue crabs are harvested. In developing these regulations, NMFS considered right whale distribution, entanglement risk factors, and blue crab fishery characteristics.

A fishing trip is defined in 50 CFR 300.21 as a period that a fishing vessel spends at sea between port visits and during which any fishing occurs.

Comment 27: NMFS received one comment on the object-free line proposed for trap/pot gear fished in the Southeast Restricted Area North. The commenter stated that many Florida blue crab fishermen use a second, trailing buoy and wondered if weak links would need to be attached to each buoy.

Response: This final rule prohibits any object, including buoys, from being placed between the surface buoy and the trap/pot gear while fishing in the Southeast Restricted Area North. NMFS believes that knot-free and object-free lines have a higher probability of sliding through whale baleen than lines with bumps, bulges, or attached buoys, weights, bottles, etc. that are larger than the line's diameter (splices are allowed, but not preferred). A few Florida blue crab fishermen report they attach a trailing buoy by 1-3 ft of line to the surface buoy of blue crab trap/pot. The surface and trailing buoy combination is used to assess ocean currents and the direction from which they should approach and retrieve their gear. A trailing buoy would defeat the purpose of the object-free line, however, NMFS did not notify and request comments on prohibiting trailing buoys or using weak links with trailing buoys. Therefore, trailing buoys are allowed, but via this preamble, NMFS discourages fishermen from using trailing buoys. If a trailing buoy is used, the use of a weak link is required.

Comment 28: One commenter commented that the lack of risk reduction proposed in the mid-Atlantic was unacceptable. The commenter stated that this is an area of high seasonal use for humpbacks and subject to sparse survey effort. The commenter also suggested that recent increases in dogfish and black sea bass quotas are likely to increase effort beyond what was considered in the model and likely result in increased risk.

Response: The Plan was developed to reduce the level of serious injury and mortality of North Atlantic right, humpback, and fin whales. NMFS chose to develop

management measures in areas of high co-occurrence of gear and large whale sightings. NMFS used these high co-occurrence areas as a proxy of entanglement risk to large whales. There are fewer large whale sighting data in the mid-Atlantic than in other regions. Because of the lack of sighting data in the mid-Atlantic, it did not register as an area of high co-occurrence between whales and fishing gear. NMFS would welcome new information, including sightings and effort data, on large whales in this area. In fact, NMFS and the Team have identified Mid-Atlantic surveys as a high priority. Should funding support increased monitoring and/or modelling efforts in the Mid-Atlantic, NMFS will work with its research partners to develop an adequate monitoring plan and/or model for the Mid-Atlantic area.

As part of this ALWTRP vertical line rule development process, NMFS did not consider future increases in dogfish and black sea bass quotas and how those quota increases might affect relative levels of fishing effort.. NMFS will monitor these developments, fishing effort, and whale distribution data in the mid-Atlantic and elsewhere to see if future management measures are needed. NMFS intends to monitor this development as part of the Plan's monitoring strategy and to ensure that those fishery management efforts do not conflict with our efforts under the ALWTRP (see response to Comment 8).

Comment 29: One commenter commented that the proposed measures only incidentally protect humpback whales in the Gulf of Maine and do nothing to protect them in the mid-Atlantic. The commenter stated that the closures are in areas where humpbacks are known to occur but not during times when they're the most abundant.

Response: The closures were developed by stakeholders in areas of high right whale abundance. The final rule will implement one closure in an area including portions of Massachusetts Bay, Cape Cod Bay, and the Outer Cape. Humpback whales are known to frequent these areas and as such will benefit from the closure. As mentioned above in Response 28, NMFS chose to develop management measures in areas of high co-occurrence. High co-occurrence areas are areas that have the highest frequency of gear that overlap with right and humpback whale sightings. NMFS believes that these high co-occurrence areas pose the highest relative risk of entanglement to right and humpback whales. The mid-Atlantic did not register as an area of high co-occurrence between whales and fishing gear NMFS would welcome new information, including sightings and effort data, on large whales in this area. NMFS will monitor fishing effort and whale distribution data in the mid-Atlantic to see if future management measures are needed. NMFS intends to monitor this issue as part of the Plan's monitoring strategy (see Response to Comment 8).

1.1.3 Comments on Exemption Lines/Areas

Comment 30: Several commenters were in support of the proposed exemption to New Hampshire state waters.

Response: NMFS acknowledges this comment. The final rule will exempt New Hampshire state waters from portions of the Plan.

Comment 31: Several commenters were in disagreement with the proposal to exempt New Hampshire state waters and continue to exempt portions of Maine state waters from the Plan.

Response: The New Hampshire exemption and buffers around certain Maine islands implemented under this rule only apply to the requirement to increase the number of traps per trawl for commercial trap/pot gear. All other requirements of the Plan, including the sinking groundline and weak link requirements are still required. NMFS believes the risk of entanglement in the New Hampshire exempted area and Maine island buffers are minimal. However, NMFS will continue to monitor exempted areas, and encourage states to develop contingency plans for large whales in these areas in the event that entanglements are identified to gear from exempted areas.

Comment 32: One commenter stated that Buzzards Bay and Vineyard Sound should be exempt from regulations since Narragansett Bay in RI, inshore ME, and now possible state waters in New Hampshire would be exempt.

Response: The current and proposed exemption areas have been developed in response to requests from state fishery management agencies and are designed to ensure that regulations do not extend into areas where whales sightings or the potential for co-occurrence is low. Should a state wish to exempt portions of their waters from the Plan NMFS has established a process for requesting exemptions from requirements under the Plan.

Comment 33: Several commenters supported in the exemption to New Hampshire state waters from the increase in number of traps per trawl but not from all aspects of the Plan.

Response: NMFS agrees with this comment.

Comment 34: One commenter stated that the exemptions could increase the risk to leatherback turtles as a large number of boats fish in exempt waters and exempt areas put the species at risk.

Response: The risk to leatherbacks as a result of the proposed New Hampshire state waters exemption was considered in the FEIS (Chapter 5). NMFS is not relaxing the current restrictions in the exempted waters, thus, does not expect an increased risk to leatherbacks relative to the status quo. Leatherbacks are found within New Hampshire state waters but not in the abundance that they are found in other waters.

Comment 35: One commenter did not support exemptions of small vessels from the trawling up requirement. The commenter stated that small vessels operate close to shore and these proposed requirements are already proposed to be shorter lengths. If shorter trawls or singles were allowed then the projections of risk reduction would change and haven't been analyzed in the DEIS.

Response: The final rule does not include a small vessel exemption. NMFS is allowing a minimum of two traps per trawl in some state waters as opposed to the three traps per trawl originally proposed. Also, there will be a ¼ mile buffer around three inhabited Maine islands that will allow fishermen fishing in those waters to continue to fish singles. These changes and subsequent changes to projections of risk reductions were analyzed in the FEIS. The changes result in only a small adjustment to the level of risk reduction. NMFS believes these changes address the safety concerns for small vessel operators, which were raised by fishermen during the public comment period and public hearings while still reducing the risk of entanglement.

1.1.4 Comments on Closed Areas

Comment 36: Many commenters were in support of the proposed closures stating that the closures were aimed at reducing fishing effort in key areas with high concentrations of right whales.

Response: NMFS acknowledges this comment. However, the final rule will incorporate only one such closure, the Massachusetts Bay Restricted Area. This closure was chosen by NMFS based the importance of the area to right whales and presence of large whales within the area during proposed closure period. See response to comment 38.

Comment 37: Several commenters took issue with the start date of the proposed closure of January 1 for the Cape Cod Bay and Massachusetts Restricted Area. By starting the closure January 1 the commenters felt they would miss fishing opportunities during the months of November and December in that area. They stated that November and December are especially productive and profitable months for them.

Response: The proposed closure start date is the same start date as the current closure for the gillnet fisheries in that area. The closure period reflects the time period when whales are most abundant in this area. The social impact analysis included in the FEIS examines the economic burden posed by the closure and the likely effect on the economic viability of fishing operations. The analysis identifies vessel segments that may be heavily impacted by the requirements and suggests that under the preferred alternative, a limited number of small vessels are most at risk when comparing annual compliance costs to average per-vessel revenues. As a result, harvest levels are unlikely to change and related industries (e.g., seafood processing) are not likely to be affected. NMFS believes that the expected conservation gain will provide the best chance for the Plan to achieve its goals and objectives, as well as satisfying the requirements of the MMPA and ESA.

Comment 38: Many commenters opposed the closures and questioned the conservation value of the closed areas. In some of the proposed areas fishing effort is low so the chance of an entanglement is already low.

Response: NMFS made modifications to the final rule based on public comment. One such modification was the implementation of just one closure instead of the three

originally proposed. The Massachusetts Restricted Area contains habitat that is very important and heavily utilized by right whales and is currently closed to gillnet fishing. The closure in this area would be extended to trap/pot fisheries under the final rule in an effort to lower the risk of entanglement in a high co-occurrence area.

Comment 39: Numerous commenters stated that a closed area would displace fishermen to already crowded areas or create a wall of gear just outside the closure.

Response: NMFS analyzed the alternatives in two ways to account for varying fishing effort depending upon the behavior of industry as a result of the proposed closures. One way assumed 100% suspension of fishing as a result of the closures and the other way assumed some vessels would relocate to fish outside the closed areas. The potential range of the reduction in co-occurrence of the Preferred Alternative is 37.4- 37.9%. NMFS believes that this closure will result in a reduction in co-occurrence that will work towards meeting the goals of the MMPA and ESA.

Comment 40: Multiple commenters recommended that NMFS close the Southeast U.S. critical habitat to trap/pot fishing since the agency proposed closing Cape Cod Bay to trap/pot fishing in January and February and the two areas exhibited similar co-occurrence scores of whales and fishing gear during this time of year (as presented in Appendix 5-A of the DEIS). These commenters further stated that closing critical habitat in the Northeast but not in the Southeast was an inconsistent strategy given young small calves are at a greater risk for entanglement in the Southeast critical habitat. Some strongly recommended that NMFS adopt the black sea bass seasonal closure currently required under South Atlantic Snapper-Grouper Fishery Management Plan as part of this final rule throughout the Southeast U.S. Restricted Area, an area that is already closed to gillnet fishing.

Response: NMFS did not propose a trap/pot closure in the southeast U.S. critical habitat or Southeast Restricted Area North under this rulemaking because these areas did not exhibit extensive trap/pot fishing within either of these areas when compared to the volume of effort in Cape Cod Bay. In addition, the characteristics of blue crab trap/pot gear and lobster gear used in Cape Cod Bay are very different and therefore require different strategies to reduce risk to right whales. NMFS believes blue crabs can be harvested safely within state waters for reasons stated in the proposed rule, FEIS, and in this final rule under comments and responses on weak link, rope breaking strength, and trap removal. NMFS is not adopting the current black sea bass seasonal closure required under the Snapper-Grouper Fishery Management Plan under this rule-making. NMFS published the ALWTRP proposed rule to mitigate the threat of vertical lines in commercial fisheries on July 16, 2013 (78 FR 42654). In a separate, unrelated rulemaking action, NMFS published a South Atlantic Fishery Management Council (SAFMC) Snapper-Grouper Fishery Management Plan-related proposed rule on July 2, 2013 (78 FR 39700) which, among other things, proposed a closure of the commercial black sea bass fishery in the South Atlantic from approximately Cape Hatteras, North Carolina to Cape Canaveral, Florida from November 1 through April 30. That closure became effective when the final rule was published on September 23, 2013 (78 FR 58249).

During team discussion, data analyses and the initial ALWTRP rulemaking process, the Team and NMFS was unaware that there would be an increase in the black sea bass quota (specifically, during the right whale winter migration) and associated closure as a result of this quota increase. Thus, this scenario was not discussed or included in the proposed rule. NMFS cannot implement a similar closure in this rule-making because NMFS did not seek comment on mirroring the SAFMC Snapper-Grouper Fishery Management Plan black sea bass closure to protect right whales. NMFS will consider this issue as it further develops the Snapper-Grouper Fishery Management action.

Comment 41: Multiple commenters noted that the closure boundaries could be incorrect because of changing environmental conditions. The commenters believe that if the boundaries are wrong there is little chance to change them in a timely manner due to the lengthy process that is required to amend the Plan. They also did not support static closures as a means to protect whales.

Response: NMFS acknowledges this important comment. Managing resources in the face of changing environmental conditions is challenging. NMFS believes that there is enough evidence suggesting whales inhabit the proposed Massachusetts Restricted Area to support closing this area. This area has long been known to be an important feeding ground for large whales. In fact, according to a recent report by Massachusetts Division of Marine Fisheries (2011) there has been an increase in presence of whales, particularly right whales, in this area in the months of January through April. Including the Outer Cape as part of this closure area creates a protection corridor for the whales to travel through on their way to their Cape Cod Bay feeding ground. Recent passive acoustic studies analyzing right whale calls detected in Massachusetts Bay indicate a persistent presence of right whales and call activity throughout much of the year (Morano et al. 2012; Mussoline et al. 2012). NMFS will continue to survey the area for whale abundance and will work with the Team to modify the Plan if future surveys indicate that this area is no longer an important one for large whales. In addition, the ability to account for distribution shifts exist in the current regulations (see response to Comments 3 and 13). If it is found that right whales remain in a closed area longer than expected or leave earlier, or if the boundaries of a closed area are no longer appropriate NMFS, in consultation with the Team, has the ability to make changes to the requirements.

Comment 42: Multiple commenters noted that the boundaries of some of the closures (Jeffreys Ledge and Jordan Basin) appear to be based on right whale distribution and not co-occurrence as decided on by the Team. They mentioned that the closures were not fully vetted through the Team and adding them after the fact is not transparent to the Team process.

Response: NMFS agrees that the boundaries for all of the proposed closed areas were based in part on the distribution of right whales. Although the Team did agree to focus its conservation efforts on high co-occurrence areas, some Team members expressed concern. They felt that by relying solely on co-occurrence, some of the known right whale high use areas would not be adequately protected. In response, several closure proposals were

developed by Team members. The closure proposals were initially discussed at the January 2012 Team meeting followed by additional discussion at its February and April 2012 meetings. Therefore, NMFS disagrees with the notion that the closures were not vetted through the Team. Based on public comment, the final rule does not include the Jeffreys Ledge or Jordan Basin closure (see the "Changes from the Proposed Rule" section of the preamble).

Comment 43: One commenter stated that the proposal to close the northern portion of Cape Cod Bay was not warranted. There is not a lot of fishing effort in the area and to those that fish there that area encompasses almost all of their winter fishing area.

Response: See Response to Comments 37, 38 and 42.

Comment 44: One commenter commended NMFS for proposing the closures but stressed the importance of reporting requirements to assess the closures effectiveness. Closures could trigger a relocation of effort so NMFS should be ready to expand the boundaries of the closures if this relocation leads to new areas of high co-occurrence.

Response: NMFS intends to continue to monitor its fishing vessel trip report and observer data and work with states to improve reporting requirements to accurately capture fishing effort and changes in fishing effort as a result of the final rule requirements. Should relocation of effort occur that would result in new areas of high co-occurrence NMFS would work with the Team to adjust the Plan as needed.

Comment 45: One commenter suggested that NMFS consider replacing the proposed Jeffreys Ledge and Jordan Basin closures with an increase to the minimum number of traps per trawl from November 1 through February in Maine Zones F&G (6-12 mile) to 15 traps per trawl and in Maine Zone F&G (12+ mile) to 20 traps per trawl.

Response: The final rule does not include the Jeffreys Ledge and Jordan Basin closures (see the "Changes from the Proposed Rule" section of the preamble). The rule will implement the minimum number of traps per trawl in Maine as requested by Maine Department of Marine Resources. This includes the above suggested seasonal increase to a 20 trap per trawl minimum in Maine Zones F&G.

Comment 46: Many commented that the proposed area for closure in Nantucket Sound was not justified by the co-occurrence model.

Response: See response to Comment 42. NMFS has modified the final rule based on public comment and chosen to implement a seasonal closure in Massachusetts that does not include portions of Nantucket Sound.

Comment 47: One commenter suggested that the closures may provide some level of reduction but these closures may not achieve the reduction needed to reach PBR. The closures are a minor step in addressing the issue. The commenter further requested that

NMFS use an appropriate and peer-reviewed population model to quantify the impact of closures on whale populations.

Response: NMFS and the Team cannot determine the exact percent reduction of vertical lines needed to reduce serious injury and mortality of large whales that encounter vertical lines to satisfactory PBR levels. Sufficient information is not available on when, where, and how entanglements occur such that a quantifiable line reduction target can be calculated. NMFS believes that the closure, accompanied by the minimum number of traps per trawl requirement coupled with the current regulations already required under the Plan will achieve the goals and objectives of the MMPA and ESA. As part of its monitoring plan, NMFS will monitor the impacts of all the requirements in the rule on whale populations (see response to Comment 8.

Comment 48: One commenter suggested that the time period for the Jeffreys Ledge closure include September.

Response: The final rule does not include the Jeffreys Ledge closure (see the "Changes from the Proposed Rule" section of the preamble).

Comment 49: One commenter supported the use of closed areas to manage entanglement risks to right whales in locations where right whale abundance is predictable and industry impacts are minimal. The commenter supported closing the Massachusetts states waters in the Cape Cod Bay Critical Habitat and suggested that this closure be state managed. The commenter believes that a closure in Cape Cod Bay should be dynamic to allow the state to alter the closure based on the large whale surveillance program conducted in that area.

Response: See response to Comment 42. NMFS appreciates the support for a closed area in Cape Cod Bay. NMFS believes that the most effective closure to reduce the risk of serious injury and mortality would include Federal waters as well as state waters. NMFS intends to monitor this issue as part of the Plan's monitoring strategy (see response to Comment 8).

Comment 50: Multiple commenters stated that the economic costs of the closures to the industry is too great and outweighs the conservation benefits to whales gained by the closures. They stated that the reduction in co-occurrence as a result of the closures is minimal compared to the cost to industry. The cost per unit of co-occurrence reduction is spread across fewer vessels impacted by closures.

Response: NMFS partially agrees with the commenter and has modified the final rule based on public comment to include one closure instead of the proposed three (see the "Changes from the Proposed Rule" section of the preamble). NMFS is sensitive to the cost of complying with the final rule and has analyzed these costs in Chapter 7 of the FEIS. NMFS believes that there is enough evidence suggesting whales inhabit the proposed Massachusetts Restricted Area to support closing this area (see response to Comments 37, 38 and 42). The Massachusetts Restricted Area has long been known to be an important

feeding ground for large whales and there is a reduction in co-occurrence that will translate into a conservation benefit.

Comment 51: Multiple commenters stated that if the Jordan Basin closure is finalized the boundary of the closure area should be modified to only include waters in LMA1 and not have the boundary cross the LMA 3 line as currently proposed.

Response: The final rule does not include the Jordan Basin closure. Please see the "Changes from the Proposed Rule" section of the preamble and the response to Comments 37, 38 and 42.

Comment 52: One commenter stated that closures are essential to reducing serious injury/mortality of large whales. The commenter believes that closures are the best means to reduce risk as each proposed closure has a high co-occurrence score during the proposed season.

Response: NMFS believes that closures can serve as an important conservation tool if utilized appropriately. However, based on public comment and the analysis of its alternatives found in the FEIS, NMFS does not believe all three proposed closures are based on high co-occurrence scores during the proposed seasons as the commenter suggests. Therefore, based on public comment, the final rule does not include the Jeffreys Ledge or Jordan Basin closure (see the "Changes from the Proposed Rule" section of the preamble and response to Comment 42).

Comment 53: Some commenters were concerned about the failure to more fully address vertical line risk in the Southeast in light of the likely increased effort in the black sea bass trap/pot fishery during the winter as a result of the SAFMC's recent actions related to the Snapper-Grouper Fishery Management Plan. Commenters note that this potential increase in fishing effort was not considered in the DEIS.

Response: NMFS is aware that the SAFMC is developing a regulatory amendment, Snapper Grouper Regulatory Amendment 16, to modify or remove the recently implemented black sea bass fishery closure intended to protect right whales from entanglement in vertical lines associated with the black sea bass fishery. NMFS is also aware that this regulatory amendment has the potential to contradict or remain consistent with the intent of this final rule (intended to reduce the threat of entanglement to right and other large whales from vertical lines associated with commercial fisheries). Therefore, NMFS is collaborating with the SAFMC on their regulatory amendment to encourage adequate protection for right whales. Additionally, NMFS may consider future amendments to the ALWTRP, if appropriate, to address new developments that affect the risk to right and other large whales in the South Atlantic from vertical lines associated with commercial fishing gear.

1.1.5 Comments on Effective Date

Comment 54: One commenter recommended that NMFS provide an adequate period prior to implementation of the final rule to allow for public education and for fishers to convert their gear to comply with the new regulations. The commenter further noted affected states might need time to make changes to state trap/pot gear regulations to address inconsistencies between state regulations and NMFS' proposed amendments to the ALWTRP.

Response: NMFS agrees and considered input from state managers and industry leaders to ensure that the date chosen for implementation is practical and provides adequate time to comply with new requirements.

Comment 55: One commenter stated that there will be a significant burden placed on industry to comply with the proposed measures and requested that NMFS provide adequate time for industry to convert their gear.

Response: NMFS is sensitive to the needs of industry to convert their gear to the required minimum number of traps/pots per trawl and appropriate gear marking scheme. Typically NMFS provides 30 days for industry to comply with new requirements. Based on public comment, NMFS has agreed to provide additional time for fishermen to convert their gear (please see response to Comment 54).

Comment 56: Numerous commenters requested that the implementation date coincide with the trap/tag date of June 1 as a mid-season implementation date in the fall is not practical.

Response: NMFS agrees with the commenters and will work with state managers and industry leaders to ensure that the date chosen for implementation is practical and provides adequate time to comply with new requirements. NMFS will have a phased in approach to the new requirements if necessary.

1.1.6 Comments on Gear Marking

Comment 57**:** Numerous people commented that requiring one color code for trap/pot lines deployed in state waters and another for federal waters as proposed would force commercial fishermen to re-rig their gear because blue crab trap/pot gear is fished in state, federal, or state and federal waters depending on blue crab distribution. These commenters recommended a gear marking scheme that would allow fishers to quickly alter color markings without incurring the expense and labor of changing the entire line. One commenter requested a 3-year phase-in period because old or wet lines will not take paint or hold colored tape, so entirely new lines will have to be purchased before the fishery could come into compliance with this measure. However, the commenter supported the two-color marking requirements to differentiate trap/pot gear fished in state vs. federal waters. There were also some commenters, including fishermen that did not object to the proposed gear marking scheme.

Response: The concern about different gear marking requirements between federal and state waters is restricted to the blue crab fishery off Georgia and South Carolina. NMFS believes the requirement for trap/pot gear fished in federal waters to return to port at the end of a fishing trip will eliminate fishing for blue crab in federal waters. Consequently, NMFS does not believe a gear marking scheme that will enable trap/pot gear to be easily moved between federal and state waters is needed. Furthermore, the ALWTRT highlighted that gear marking is an important conservation measure, specifically gear marking that allows gear to be distinguished between areas.

NMFS appreciates the concern about old or wet lines not taking paint or holding colored tape. Since we did not receive any comments from trap pot fishermen regarding challenges with gear marking or the need for a phase-in period, NMFS does not believe these actions are necessary. See Response to Comment 26.

Comment 58: Many commenters while in support of gear marking felt the proposed gear marking fell short of manager's needs and a more refined gear marking was necessary.

Response: Based on implementation considerations and technology presently available, NMFS believes the final gear marking scheme is appropriate. If more promising techniques become available in the future, NMFS will discuss these further with the Team.

Comment 59: Many commenters stated that marking in exempted waters would be difficult and not feasible. Many fish both inside and outside of the exemption area so they would need to remark their gear with a different color scheme every time they fish in and out of the exempted waters. This is not time or cost effective.

Response: NMFS has modified the final rule based on public comment and will not require gear marking inside the exemption area.

Comment 60: Some commenters stated that if exempted waters were required to be marked that Maine and New Hampshire should have different colors for their exempt waters and not be grouped together.

Response: See Response to Comment 59.

Comment 61: Some commenters stated that marking the line 3 times was excessive and 1-mark mid-way down the line is adequate. The commenters felt that making the current mark larger would be the easiest approach but were unclear if this would really make a difference.

Response: NMFS believes the current gear marking scheme that requires only one 4-inch mark is inadequate. Frequently the line recovered from entanglement events is unmarked. Of the 499 entanglement events from 1997-2011 gear was only recovered in 170 cases; of the entanglement events, gear marking lead to 51 (10%) cases where fishery, location, and date were known. NMFS believes requiring larger marks more frequently will increase the amount of marked line recovered during events and thus inform future management decisions.

Comment 62: Some commenters questioned the need to mark in exempt waters if the occurrence of whales in exempt waters is rare.

Response: See Response to Comment 59.

Comment 63: Two commenters cited challenges with marking offshore gear as the gear is always wet and infrequently brought back to shore. The gear is also easily identified due to its size.

Response: NMFS acknowledges this challenge but points out that offshore gear is currently required to be marked. The new gear marking scheme would expand the size and frequency of the current gear marking scheme.

Comment 64: A few commenters noted that fine scale marking in the Gulf of Maine is justifiable and more unique color codes are necessary than what is being proposed.

Response: See Response to Comment 58.

Comment 65: Many commenters opposed increased gear marking in LMA1 (frequency, level, or size) stating that the gear marking only informs where the gear was set and not where the entanglement occurred. These commenters suggested that NMFS suspend increased gear marking requirements until more definitive regional markings are available.

Response: See Response to Comment 58.

Comment 66: A few commenters suggested NMFS modify the proposed gear marking to understand the gear configuration in the Gulf of Maine. The commenters suggested marking by trawl length.

Response: Various gear marking schemes were discussed by the Team over the course of several meetings during the development of this rule, including the idea suggested by the commenter. However, the Team could not reach agreement on how to mark gear based on the gear's configuration. NMFS also solicited gear marking ideas during its public scoping meetings, which also did not yield any favorable alternatives. Therefore, NMFS believes the final gear marking scheme is appropriate based on the current technology that exists and public comments received on feasibility of gear marking.

Comment 67: One commenter suggested adding a second color for each LMA. The commenter also did not support the use of orange as color for marking the Southern Nearshore Trap/Pot area as this is too similar to the red color required in other waters.

Response: Based on implementation considerations and technology presently available, NMFS believes the final gear marking scheme is appropriate (see response to Comment 63). The current color mark for Southern Nearshore Trap/Pot area is orange. The final rule does not change this color scheme.

Comment 68: One commenter suggested that rather than just 3 marks per line that the number of marks be increased for those fishing in deeper waters. The commenter also suggested marking groundlines.

Response: Based on the public comments received, NMFS believes that 3 marks per line is adequate at this time. NMFS did not propose marking groundlines through this rulemaking given the fact that all groundline in regulated areas should be sinking and thus easy to distinguish from vertical line.

1.1.7 Comments on Weak Links/Vertical Line

Comment 69: Multiple commenters stated they already use weak links and some used weak links with fewer hog rings than required (i.e. lower breaking strength). These commenters stated that they did not have objections to the proposed weak link requirement. One commenter requested test trials because he did not know how many hog rings resulted in 200 lb breaking strength and he wanted to ensure the feasibility of this requirement in the blue crab fishery. Another commenter mentioned the importance of enforcing the existing weak link requirements. Other commenters recommended that 200 lb weak links be required throughout critical habitat or throughout SERA N.

Response: We are pleased that many fishermen already use weak links and that some are using lower breaking strength than required by the ALWTRP. We agree that enforcement is important and we will ensure that our Joint Enforcement Agreements with state agencies include checking weak links on trap/pot gear.

We believe a three hog ring weak link configuration is feasible for the Florida blue crab fishery. We conducted five trials to test the breaking strength of a 3-hog ring, side-by-side configuration and each time found the breaking strength to be less than 200 lbs (NMFS unpub. data).

We are not requiring a uniform 200 lb weak link throughout critical habitat or the SERA N for the same reasons a vertical line with maximum breaking strength of 1,500 lbs is not required (see Response to Comment 70).

Comment 70: A number of commenters submitted the following comments on the rope breaking strength requirement: 1) The 1,500 pound (lb) vertical line breaking strength is the most risk-averse proposal and should be adopted for the right whale calving area critical habitat or the entire Southeast restricted area; 2) NMFS does not explain why the Federal waters vertical line breaking strength requirements mirror those of Georgia and South Carolina rather than the more appropriate (and more conservative) Florida breaking strengths; and 3) NMFS attempted to rationalize different rope breaking strengths in different areas by stating that the lower breaking strength in Florida state waters would protect "neophyte" calves; however, these same "neophytes" are born further to the north where rope breaking strengths are far higher and thus, presumably create greater risk. On the other hand, some submitted comments in support of lower breaking strengths for vertical lines and weak links in Florida state waters versus those required for Georgia and South Carolina. They commented that right whales off Georgia and South Carolina are frequently

found over 3 miles from the shoreline so there is less overlap of whales with state water fisheries, whereas right whales in northeast Florida frequently inhabit state waters.

Response: NMFS does not agree with the recommendation to require 1,500 lb vertical line breaking strength throughout critical habitat or the entire Southeast restricted area. The rationale for requiring different rope breaking strengths in different areas is based on multiple considerations: 1) right whale mother/calf pairs in the Southeast most frequently occur in water depths of 10-20 m (~33-66 ft) (Keller et al., 2012). Florida state waters are typically deeper than 10 m (~33 ft) closer to shore whereas depths along the coasts of Georgia or South Carolina are generally less than 10 meters (~33 ft). Therefore, NMFS believes the probability of blue crab trap/pot gear interactions with mother/calf pairs is higher in Florida state waters than South Carolina or Georgia state waters; 2) many fishermen in South Carolina and Georgia state waters report their trap/pot gear can be partially buried in bottom sediment and therefore require stronger vertical lines to avoid unintentionally breaking lines during retrieval; 3) Offshore federal waters are less protected and typically exhibit harsher conditions that require vertical lines with greater breaking strengths to reduce accidental gear loss and the potential risk to right whales from derelict gear. Consequently, NMFS capped the maximum vertical line breaking strength in federal waters at 2,200 lbs and included the additional requirement that all trap/pot gear be brought back to shore at the end of each fishing trip. NMFS believes these combined measures provide overall risk reduction for right whales while taking into account their co-occurrence with fishing gear, bathymetry, and characteristics of fishing practices in offshore federal waters.

1.1.8 Comments on Gillnets

Comment 71: Many commenters felt that the impact from gillnet gear should be included in the proposed vertical line reduction measures.

Response: Including gillnets in the proposed measures was analyzed in the FEIS and rejected (See Chapter 3, Appendix 3-A of the FEIS). The gear characterization information in the co-occurrence model shows that 99% of the vertical lines coastwide are from lobster trap/pot and other trap/pot fisheries (Exhibit 3A-1). For this reason, NMFS and the Team chose to focus this rule making on trap/pot gear only.

Comment 72: One commenter suggested that a prohibition on gillnets be included in the Jeffreys Ledge trap/pot closure area.

Response: The final rule does not include the Jeffreys Ledge closure (see the "Changes from the Proposed Rule" section of the preamble and response to Comment 42).

Comment 73: One commenter suggested that the rule include a prohibition on gillnets in all proposed closure areas as well as the sliver management area with the current Great South Channel Restricted Gillnet Area.

Response: See response to Comment 71. In addition, the amount of gillnet vertical lines removed as a result of the proposed closures the result is minimal compared to the trap/pot gear removed (Chapter 3 Exhibit 3A-2 of the FEIS). This result leads to a high economic impact on individual gillnet vessels but low overall conservation impacts or reduction in co-occurrence. Therefore, NMFS proposed the closures for only trap/pot gear and not gillnet gear.

1.1.9 Comments on Enforcement and Monitoring

Comment 74: Many commenters stated their support for increased effort and funding for enforcement to improve compliance.

Response: NMFS appreciates the support and acknowledges that enforcement is essential to the success of the Plan's regulations.

Comment 75: One commenter stated that status quo could be improved by having mandatory training for disentanglement by industry members. He stated that it didn't make sense to wait hours for trained responders to arrive during a rescue situation.

Response: NMFS has a Atlantic Large Whale Disentanglement Network that provides training, equipment and authorization for responders to disentangle large whales. There are defined safety protocols and established guidelines for training and designation of response levels within the program. A five level structure was established based upon levels of training, with respect for the inherent danger of working with various species of large whales. NMFS does not believe that training should be mandatory but encourages those that are interested in response to go through NMFS training process.

Comment 76: Multiple commenters stated that the rule does not address data gaps for lobster fishing in Federal waters. They suggested NMFS require Federal lobster permit holders to report landings, gear configuration, and other relevant information.

Response: NMFS is aware that data gaps exist in certain fisheries. The American lobster fishery is managed cooperatively by the Atlantic states and NMFS under a fishery management plan (FMP) developed by the Atlantic States Marine Fisheries Commission (Commission), which is a deliberative body of 15 Atlantic coastal states that coordinate the conservation and management of Atlantic coastal fishery resources. Under the American Lobster FMP, the states issue regulations for lobster fishing in state waters and NMFS supports the FMP by implementing regulations for fishing in federal waters. NMFS continues to work closely with the Commission to develop uniform reporting where appropriate.

Comment 77: One commenter stated his support for better enforcement and monitoring of existing regulations before proposing additional measures. He suggested there should be annual stock assessments for large whale species and a more timely decision making process that relies on real time information.

Response: NMFS and the Team have developed a comprehensive monitoring strategy that evaluates industry compliance to the Plan's requirements and the overall effectiveness of the Plan in achieving its goals and objectives (see response to Comments 6 and 8). NMFS continues to work with the US Coast Guard and state partners through Joint Enforcement Agreements to enforce regulations. NMFS currently publishes Stock Assessment Reports for large whales on an annual basis. Decision making processes that rely on real time information are often challenging, NMFS, in collaboration with the Team, bases decisions on the best information available at that time.

Comment 78: One commenter believes that the monitoring of the impacts of the proposed changes is unclear. The commenter recommends that funding for large whale scar analysis continue in order to determine if scarring has increased or decreased and if the reduction of vertical line has reduced the rate of interaction. Scarring analysis could also help to monitor the trend in severity of the entanglements.

Response: Scarring analysis is included as a metric in the monitoring strategy (see Response to Comment 8).

Comment 79: One commenter feels that NMFS must address the risk associated with emerging fisheries.

Response: NMFS has a plan in place to deal with emerging fisheries through its annual List of Fisheries. Fisheries are added to the Plan once they are classified on the annual List of Fisheries as having frequent or occasional interactions with marine mammals. If an emerging fishery fits these criteria then that fishery would have to abide by all the Plan's requirements including the proposed trawling up requirements.

Comment 80: One commenter stated that improved enforcement and monitoring is needed and fisheries should be monitored on a day to day basis. The commenter suggested increasing the frequency of observer coverage or video surveillance as data collection leads to stricter enforcement.

Response: NMFS agrees that enforcement and monitoring are essential to the Plan's success. Sea-sampling observers do collect large whale sightings data, however, this is one of many data collection responsibilities and the likelihood of observing an entanglement event is rare.

Comment 81: One commenter feels that there should be mandated reporting requirements for all states.

Response: See response to Comment 72. NMFS will continue to work with state partners to improve reporting requirements to keep the fishing effort data in its vertical line model current. If voluntary reporting becomes an ineffective means to collect information NMFS will work with the Atlantic States Marine Fisheries Commission on the prospect of mandatory reporting.

Comment 82: One commenter encouraged NMFS to produce more robust annual monitoring reports. The commenter also requested a full five year report be completed before the final rule assessing the sinking groundline rule since it has been in place for five years.

Response: See Response to Comments 6 and 8. NMFS will assess its annual monitoring reports to ensure that the most useful information is included.

Comment 83: One commenter recommended a requirement that all trap/pot fishermen permitted to fish in federal waters record and submit data on the location, number, and length of time that endlines are deployed and describe in the FEIS precisely what data on endlines (e.g., number, location, and length) NMFS expects state fishery agencies to provide to evaluate compliance and rule effectiveness.

Response: NMFS cannot implement reporting in this rule-making because NMFS did not seek comment on this measure in the proposed rule. Although such reporting is outside the scope of this rulemaking, NMFS will re-evaluate a reporting requirement in future relevant rulemaking.

1.1.10 Comments on the Shipping Industry and/or Ship Strikes

Comment 84: One commenter stated that he thought whales got hit by boats and then entangled in the line so the shipping industry should be held accountable.

Response: The Recovery Plan for the North Atlantic Right Whale (National Marine Fisheries Service 2005) identifies vessel interactions and interactions with commercial fishing operations as the two primary sources of anthropogenic activities that result in right whale death or serious injury. Although the scenario suggested by the commenter is plausible, NMFS addresses vessel interactions and interactions with commercial fishing operations separately. Ship strikes are evaluated through a separate action in support of the implementation of the North Atlantic right whale ship strike strategy. The ship strike reduction rule, first implemented in 2008, presents regulatory measures that reduce the risk of ship strike to right whales, such as speed restrictions and vessel routing measures. The rule is one component of a suite of NMFS' comprehensive right whale ship strike reduction measures, which also includes education and outreach to commercial and recreational mariners, research on technologies that may help mariners avoid whales, a comprehensive program of sighting advisories to mariners, section 7 consultations to address Federal vessel activities, and the development of a Conservation Agreement with Canada ship strike strategy. This final rule addresses the risks to right whales from interactions with commercial fishing operations by reducing the risk of death or serious injury when large whales encounter vertical lines from commercial trap/pot gear.

Comment 85: One commenter stated that the ship speed rule should be permanent.

Response: On December 9, 2013 NMFS published a final rule (78 FR 73726) that eliminated the expiration date of the ship strike reduction rule. The rule is now permanent.

Comment 86: One commenter stressed the need to address the impact of ship strikes.

Response: See Response to Comment 84.

1.1.11 Comments on the Number of Traps per Trawl

Comment 87: Several commenters were concerned that increasing the number of traps per trawl would create safety issues for smaller fishing operations. These commenters stated that there would be stability issues and the potential for capsizing due to the distribution of weight of the additional rope and traps on board.

Response: Because vertical lines pose a risk to whales regardless of vessel size, NMFS requires both small and large vessels to increase the number of traps per trawl to reduce the number of vertical lines in the water column. However, NMFS is aware of these safety concerns for smaller vessels. To address impacts to smaller vessels, state managers and industry representatives on the Team proposed utilizing smaller minimum number of trap/pots per trawl. Those smaller limits in inshore state water areas are contained in the final rule. Also, based on public comment NMFS modified the final rule to allow for a minimum of two traps per trawl in areas that previously would have required three traps per trawl. NMFS also established a ¼ mile buffer around three inhabited Maine islands to allow those small vessels to continue to fish single trap/pots. NMFS believes that these modifications address the small vessel safety concerns while still meeting the conservation goals of the MMPA and ESA.

Comment 88: Several commenters disagreed with the changes to the inshore fishery to require pairs or triples and no longer allow singles. They stated that they fish around shallow bays and rugged bottoms so fishing with anything more than a single would create gear loss or damage. They suggested a near shore exemption for singles.

Response: The final rule will not include a near shore exemption for singles. See Response to Comment 82.

Comment 89: One commenter stated that it appeared that concessions were made to minimize the hardships in meeting the plan's goal and LMA 2 lobstermen are disproportionally affected by the proposal. The commenter stated that Downeast Maine lobstermen were allowed to fish doubles but LMA 2 would be required to go up to three traps per trawl in state waters even though there are probably 30-50% fewer vertical lines in LMA 2 today than in the past due to the lobster stock collapse.

Response: NMFS modified the final rule based on public comment. All those fishing in state waters of LMA 2 will be allowed to fish doubles rather than the previously proposed three traps per trawl.

Comment 90: Several commenters stated that trawls would increase gear conflict and thus ghost gear.

Response: NMFS evaluated the effects of trawls on gear loss in Chapter 6 of the FEIS. Overall, the effect of trawling on gear loss is unclear. While data from a Maine trawling project completed in 2012 suggest some potential for increased gear loss during fishermen's transition to trawls, the more extensive data from the Massachusetts ghost gear survey completed in 2011 suggest that trawls are less subject to gear loss in steady-state conditions. Gear loss is likely a function of numerous variables that extend well beyond the trawl configuration, including bottom structure, shipping traffic, gear density, gear conflicts, tides, currents, and weather events. The net effect of trawling in the context of all these variables is difficult to characterize or quantify. NMFS and the Team will continue to monitor this issue and make adjustments to the Plan if warranted.

Comment 91: One commenter stated that it was more profitable and safer to fish singles than trawls.

Response: Analysis of the impact to catch as a result of trawling is discussed in Chapter 6 of the FEIS. Data to support a quantitative analysis of trawling effects on catch are extremely limited. Because multiple factors influence catch rates (gear configuration, gear density, the abundance of the target species, bottom structure, soak time, individual skill, etc.), it is difficult to isolate the effect of trawl configuration on catch. Research has demonstrated that the optimal spacing of lobster traps depends upon the abundance of lobster in an area; the greater the density of lobster, the greater the density of traps that can be fished without an adverse impact on catch per trap (Schreiber, 2010). In Massachusetts waters where lobster appear to be less dense than Maine waters there is a possibility of that changing gear configuration may impact catch. These impacts may diminish over time, as fishermen adapt to new gear configurations and learn to fish longer trawls more efficiently. NMFS believes that the minimum number of traps per trawl required and exceptions made to this requirement, adequately address the safety concerns association with fishing trawls while still providing a viable economic return to fishermen.

Comment 92: A few commenters questioned the proposal to increase the number of traps per trawl and stated their opinion that a whale would be more likely to survive a single pot entanglement than an entanglement in a trawl.

Response: NMFS believes that a single line of high breaking strength with one or multiple traps can be deadly. No analysis has been conducted but past experiences show that just a simple loop can kill a whale. Also, it is unquestionable that fewer vertical lines create a lower entanglement risk to whales.

Comment 93: Many commenters were in support of the proposed number of traps per trawl, particularly the proposed increase outside state waters.

Response: NMFS appreciates the support.

Comment 94: Several commenters mentioned the danger of fishing with trawls in the Outer Cape citing issues related to storms, traffic and tides unique to the Outer Cape.

Response: NMFS is sensitive to these concerns and the uniqueness of the Outer Cape. The final rule will require those fishing on the Outer Cape to fish a minimum of two traps per trawl as opposed to larger trawls required elsewhere.

Comment 95: A few commenters stated that many in the Outer Cape and Cape Cod Bay use singles and wondered if there were confirmed interactions with singles in these areas. If there are not then why penalize fishermen?

Response: It is uncertain how many interactions there have been with Outer Cape and Cape Cod Bay gear. Because most large whale entanglements (particularly those involving right whales) tend to be free swimming entanglements when detected and the gear recovered from these entanglements do not provide adequate information to determine where an entanglement occurred, entanglements from specific fisheries and areas are rarely documented. After the implementation of the broad based prohibition on floating groundline in 2009, 54 new whale entanglements were reported, in 2010 (21 total: 5 right; 16 humpback), and 2011 (33 total: 11 right; 21 humpback; and 1 fin). The entangling gear was either retrieved or identified in only 15 of these incidents. NMFS must take action to ensure its goals under the MMPA and ESA are met.

Comment 96: Two commenters stated that mandating one buoy line on trawls per five or less would cause a safety issue and the potential for gear loss and gear conflict. It is a common problem for boat traffic or gear conflict to cause the temporary or permanent loss of a buoy, connected to a vertical line, identifying a trawl. Without the option to haul that trawl from a second vertical line there is a potential for increased ghost gear.

Response: NMFS acknowledges this comment but points out that the regulations currently require one buoy line on trawls having less than or equal to five traps. The final rule would not change this requirement.

Comment 97: One commenter had concerns with the trawling up strategy stating that those fishing in Federal waters are already fishing trawls with the minimum number proposed so there would be no reduction in vertical lines.

Response: NMFS disagrees with this comment. The model used current data to estimate vertical lines based from current fishing practices and estimated the reduction in vertical lines that would result from compliance with the new requirements. This demonstrates that there would be a reduction in vertical lines.

Comment 98: Two commenters felt that NMFS should set vertical line reduction limits and work with the Atlantic States Marine Fisheries Commission and Fishery Management Councils to reach those targets. One commenter felt that gillnet and other trap/pot fisheries should be included in this process as well.

Response: See response to Comments 12 and 47.

Comment 99: Numerous commenters voiced safety concerns associated with trawling up in waters surrounding Maine's many islands. The bottom is rocky and shallow in this area and many small boats fishing these waters. The waters are generally less than 30 fathoms deep and unlikely to impact whales or increase co-occurrence risk, Some suggested a ¼ mile exemption around islands from the proposal to increase the number of traps per trawl. One commenter suggested limiting the trawl minimums on a seasonal basis for areas around islands which are considered state waters but are found outside the 3-mile line.

Response: See response to Comment 87. The final rule includes a ¼ mile exemption around three inhabited islands in Maine. Those fishing in these waters will have no minimum number of traps per trawl requirement; however, all other requirements would remain in place.

Comment 100: A few commenters commented that the 4 pocket waters in Maine should maintain their current practices of fishing pairs rather than increasing to triples. These pocket waters are described in Federal law. Maintaining current practice in these waters are operationally practical for both industry and enforcement. One commenter also notes that the co-occurrence score near the pocket waters exceeds one in only one month at the head of one pocket water with the majority of this score located outside of the pocket water boundary.

Response: NMFS modified the final rule based on public comment to include the definition of pocket waters. The rule defines the geographic location of pocket waters and applies the same gear requirements for traps per trawl as in state waters, and as such, those fishing in that area can maintain the current practice of fishing pairs rather than increasing to triples.

Comment 101: Two commenters commented on Rhode Island's single pot fishery. They stated that three pot trawls are not an option for small boats for safety reasons. They also mentioned that there is no known serious injury/mortality in Rhode Island state waters and the area has a low co-occurrence score and as such should be exempted.

Response: NMFS modified the final rule based on public comment. The minimum number of traps per trawl required in Rhode Island state waters will be two instead of the three pot trawls originally proposed.

Comment 102: One commenter requested to decrease the minimum number of traps per trawl in LMA 2 (12+) from 20 to 15.

Response: The Preferred Alternative in the proposed rule proposed 15 as minimum of traps per trawl in LMA 2 (12+). The Preferred Alternative in the final rule includes this as well.

Comment 103: One commenter stated that there are indicators that suggest rope strength is too strong for whales to break free and a complex serious entanglement could occur.

Response: The final rule includes numerous measures to reduce the likelihood that a serious entanglement will occur. The rule requires a weaker breaking strength of rope in the Southeast where the potential for calves to get entangled is higher. The rule also defines a maximum breaking strength of weak links in the Southeast. Weak links are designed to reduce the breaking strength of traditional gear and have been in the Plan since its inception. Also, the final rule will lead to less vertical lines in the water which would make an encounter less likely.

Comment 104: One commenter feels that it is problematic to ban singles in areas where recreational fishing occurs and this creates a double standard.

Response: Section 118 of the MMPA requires that take reduction teams address serious injuries and mortalities of marine mammals that interact with commercial fishing operations; therefore, the proposed measures are specific to commercial fishing only. However, states may choose to regulate recreational fisheries within their state jurisdictions.

Comment 105: One commenter noted that it was counterintuitive that there would be a ban on singles proposed in the Northeast but a proposal to require singles in the Southeast. The commenter questioned the lack of consistency between regions.

Response: The proposed measures differ between the Northeast and Southeast region, as well as from state to state to account for variance in fisheries, right whale habitat use, right whale life history stage, and environmental features. The core right whale calving area located within the Southeast is of particular conservation concern due to the presence of neophyte calves and reproducing females. Singles are required in this area with the thought that calves may be able to break free of an entanglement in lighter single trap gear configuration than a heavier multiple trap trawl gear configuration. Also, in an effort to reduce damage to sensitive habitats, single trap/pots are preferable in the Southeast. The Southeast U.S. has many coastal habitats that include live bottom and corals; in particular, there are ample amounts of live bottom off the coast of Northeast Florida. Traps set in multiple trap trawls can damage live bottom more than single traps. Groundlines may drag across the bottom, potentially shearing off living organisms most important in providing topographic complexity (Barnette 2001). Furthermore, the area swept by the groundline is orders of magnitude greater than the cumulative area of the traps themselves (Barnette 2001). It is estimated that hauling in a single trap results in 30% more damage to the substrate than setting the trap itself (Appledorn *et al* 2000); thus, hauling in multiple traps would further increase the extent of the habitat than a single pot.

Comment 106: One commenter stated that a number of fishermen can't fish the minimum number traps/trawl proposed for the 12 mile line in Maine. The commenter suggested proposing a 'safe trawl equivelency'. Fishermen could fish in areas traditionally fished with a number of traps they feel is safe. This would be no less than 10 traps/trawl but

they would have to apply for this equivalency and explain why they are not able to fish the standard limit.

Response: NMFS appreciates the suggestion. NMFS developed the minimum number of traps per trawl with input from multiple stakeholder groups. NMFS believes that the minimum number of traps per trawl in the final rule is adequate, addresses the safety concerns of industry while meeting the MMPA and ESA goals.

Comment 107: One commenter suggested that the rule include a recommendation to maximize the number of traps per trawl as a voluntary measure similar to the current recommendation that ropes should be as knotless as possible.

Response: NMFS appreciates this suggestion and will add the suggestion to maximize the number of traps per trawl in northeastern waters to outreach materials similar to what is done with the knotless rope recommendation.

Comment 108: Numerous commenters supported the proposed increase in traps per trawl including adopting the proposed 6-mile line in Maine.

Response: NMFS appreciates the support for this measure in the final rule.

Comment 109: One commenter supported the proposed trawl minimums but stated without a defined target for reduction the trawl minimums are unlikely to achieve the required impact without the use of closures.

Response: NMFS appreciates the support for the trawl minimums and agrees that both the trawl minimums and closures combined will achieve the best reduction in co-occurrence. The final rule will include both trawl minimums and a seasonal closure. Regarding the use of a defined target for reduction, please see the response to Comments 12 and 47.

1.1.12 Comments on Trap Reduction/Existing Measures

Comment 110: A few commenters noted that LMA 2 has undergone trap reductions and the impact of these trap reductions should be accounted for when considering vertical line reductions.

Response: The measures developed are based on a vertical line model that allowed us to target conservation measures in areas that have the highest overlap of large whale sightings per unit effort with commercial trap/pot and gillnet fishing. The model accounts for the way the fishing industry deployed its gear in the past, which reflects the requirements when the proposed measures were developed. NMFS acknowledges that effort reduction has taken place however a reduction in traps does not necessarily equate to a reduction in the number of vertical lines in the water column. During the comment period NMFS requested comments on how best to quantify potential future trap reductions or increases with respect to how many vertical lines could be reduced or increased. NMFS did

not receive any substantive comments addressing this issue. NMFS realizes that potential effort reductions or increases in the future could reduce or increase the number of vertical lines in the water column. NMFS, in consultation with the Team, has developed a monitoring strategy to evaluate industry compliance with the Plan and the effectiveness of the Plan in achieving the plan's goals and objectives. For more information on the monitoring strategy, please see the response to Comment 8.

Comment 111: One commenter requested that NMFS anticipate the implementation of Addendum XVII to the American Lobster Fishery Management Plan intended to reduce the number of LMA 2 traps to greater than 50% in six years through active and passive reductions. He stated that 50% reduction in traps may not equate to the same vertical line reduction but it's anticipated the vertical line goal could be met by trap reductions and there should be attempt to quantify potential line reduction from effort control.

Response: See Response to Comment 110.

Comment 112: A few commenters noted that trap reductions occur when permits are transferred and thus the numbers of vertical lines are reduced. There has also been a reduction of traps because of the general reduction of fishermen.

Response: See Response to Comment 110.

Comment 113: A few commenters suggested that many fishermen are fishing below their allotment of trap/pot gear on their permit and flexibility should be allowed. They stated that NMFS can reduce the number of vertical lines by allowing that fishermen the option of either trawling up or fishing below their allotment of traps with less number of trawls.

Response: NMFS and the Team discussed this issue at several of its Team meetings during the development of this rule. Similar to the response to Comment 105, NMFS and the Team could not quantify how fishing below ones trap/pot allocations equates to a reduction in the number of vertical lines in the water column.

Comment 114: One commenter stated that LMA3 traps have been reduced by over 30% and will continue to be reduced by another 25% through active reduction. The passive reductions will result in 10% of transferred traps being retired.

Response: See Response to Comment 110.

Comment 115**:** Some commenters stated that many of the goals of the ALWTRP were currently being achieved through South Atlantic Fishery Management Council Snapper-Grouper Fishery Management Plan since it limits the number of endorsements, requires pot tending, requires that pots return to shore at the end of the fishing trip, limits fishermen to a 1000 lb trip limit, etc.

Response: In the proposed rule, we acknowledged changes within the commercial black sea bass trap/pot fishery have reduced risk to large whales. The most important and

effective risk reduction measure is that South Atlantic black sea bass fishing season has not co-occurred with the right whale season since January 2010 (i.e. no temporal or spatial overlap between commercial black sea bass trap/pot gear and right whales). However, there are other trap/pot fisheries active within the SERA N during the right whale calving season that NMFS must consider.

1.1.13 Comments on Research

Comment 116: Many commenters stated their support for increased funding for research and disentanglement.

Response: NMFS appreciates the support for increased funding for both research and disentanglement efforts. NMFS will continue to look for creative ways to fund these important programs.

Comment 117: One commenter commented that NMFS should continue to research and develop alternative fishing gear as a way to mitigate the effect of a potential increase in effort outside the closure areas. The commenter encouraged the development of ropeless fishing or reduced breaking strength of vertical lines.

Response: NMFS agrees that gear research is an important component of the Plan. NMFS funded two studies to look at the feasibility of ropeless fishing by using grapples/hooks to haul gear. There were a number of complications with this fishing method that made it infeasible from an economic and safety standpoint. At this time ropeless fishing is not a feasible option. NMFS encourages the fishing industry, state partners, and others to work collaboratively with the agency to continue to develop new ideas and techniques that will reduce entanglement risk. NMFS is committed to gear research and development and as funding allows will continue to develop reliable and safe gear modifications.

1.1.14 Comments on Economic and Social Impacts (of the ALWTRP)

Comment 118: Two commenters stated that the data used for the offshore fishery (LMA3) in the socio-economics is flawed and is not an accurate depiction of the fishery.

Response: NMFS acknowledges that the characterization of the offshore lobster fishery, like the characterization of other fisheries, is subject to the limitations of available data. The EIS attempts to address these limitations, where possible, by drawing on data from multiple sources. In the case of the offshore lobster fishery, for example, estimates of the impact of trawling requirements on revenues are based in part on catch-per-trap estimates from a 2005 survey conducted by the Gulf of Maine Research Institute (GMRI), and in part on data reported in the 2009 Lobster Stock Assessment, focusing on Georges Bank as an indicator of offshore catch rates (see Exhibit 6-4). These and the other sources upon which the EIS relies constitute the best available information on the economic characteristics of the offshore lobster fishery.

Comment 119: One commenter commented that with lower landings, less consumer surplus will lead to a greater boat price for fishermen to help offset the cost or loss in revenue from these proposed regulations. The commenter did not believe this would occur instead she thought that the U.S. imports Canadian lobsters with no import/export quota restriction, meaning, when these proposed closures result in lower landings from Maine, New Hampshire and Massachusetts, the U.S. businesses depending on this product will increase their imports from Canada before an increase in boat price will trickle down through dealers to harvesters. This may result in a higher Canadian price first, possibly a higher U.S. price later but nothing that will substitute the projected 40-66% loss in average annual gross revenue as stated.

Response: As the EIS indicates, the dynamics of the lobster market are complex, making it difficult to predict the impact of a reduction in domestic landings on the prices that U.S. lobstermen receive for their catch. The potential moderating effect of imports from Canada on any increase in U.S. prices adds to this complexity. In light of these considerations – as well as the relatively modest impact the alternatives would likely have on U.S. landings – the analysis does not attempt to adjust the estimate of economic impacts on U.S. lobstermen to account for a potential increase in ex vessel prices. It simply notes the possibility that a reduction in catch could lead to an increase in prices. It does not suggest that any such increase would be sufficient to offset the impact of a closure, either on the vessels displaced by the closure or on the industry as a whole.

Comment 120: One commenter commented that the loss in revenue as a result of closures are more than predicted stating that the cost is severely underestimated and creates a much larger cost per unit of co-occurrence reduction than cited.

Response: NMFS acknowledges the difficulty of predicting the impact of seasonal area closures on affected vessels. The EIS evaluates an upper and a lower bound scenario in an attempt to characterize the potential range of effects. In the upper bound scenario, the analysis assumes that vessels whose effort is displaced by the closure will not relocate that effort to other areas; hence, all revenue (net of operating cost savings) associated with this effort is assumed to be lost. NMFS believes this approach provides a conservative but reasonable high-end estimate of the potential economic impacts of a closure.

The commenter also notes the relatively high cost of closures, compared to minimum trawl-length requirements, in achieving a reduction in co-occurrence scores. The summary of the impact analysis (see Chapter 8) explicitly addresses this issue.

1.1.15 Clarification Requests for the FEIS

Comment 121: One commenter commented that the change in number of vertical lines and co-occurrence is not partitioned out by state versus Federal and as such it is difficult to evaluate the proposed rule.

Response: NMFS has attempted to present the results of the analysis in a manner that clearly communicates the key impacts of the alternatives under consideration. While presentation of some findings at a higher degree of geographic resolution is possible, developing this information would require a substantial investment of analytic resources. NMFS has evaluated the effectiveness of each alternative in reducing co-occurrence scores in all waters subject to the requirements of the ALWTRP, and believes it is appropriate to report the impacts of each alternative at that level.

Comment 122: One commenter requested that the discussion of weak links be expanded to include evidence that weak links have prevented entanglements, reduced the likelihood that an entangled whale would be seriously injured or die, have failed to prevent entanglements, or may be counterproductive in helping whales shed gear.

Response: Additional information was added to the FEIS to address this comment.

Comment 123: One commenter requested that the FEIS identify the steps NMFS will take to ensure enforcement of the new trawling up requirements.

Response: Additional information was added to the FEIS to address this comment.

Comment 124: One commenter requested that the analysis be revised to identify criteria being used to determine when the economic costs of closures outweigh the conservation benefit to large whales.

Response: As the EIS notes, NMFS' evaluation of regulatory alternatives is guided by the requirements of the Marine Mammal Protection Act, the Endangered Species Act, and the National Environmental Policy Act, as well as the requirements of Federal laws like the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act) and executive orders such as Executive Order 12866, Regulatory Planning and Review. None of these statutes or orders establishes explicit criteria for determining when the economic costs of a regulatory measure outweigh its benefits when – as is the case here – costs and benefits cannot be fully quantified and measured on a common basis. In such cases, identification of a preferred alternative requires an assessment of all information available, including information on the potential impacts of management measures that cannot be quantified. The preferred alternative that NMFS has identified was developed on the basis of such an assessment.

Comment 125: One commenter requested that the FEIS provide data on recent levels of fishing effort and economic impacts for proposed closures. Those data should include the number of affected fishermen, amount of gear set, and volume and net revenues of ex-vessel landings.

Response: Chapter 6 of the EIS provides the requested parameters in a series of exhibits (Exhibits 6-17, 6-22, and 6-24). For each closure, these exhibits show the number of affected vessels, the average number of traps per affected vessel, and the revenue lost per trap fished. As explained earlier in the chapter, the lost revenue figures incorporate assumptions regarding the total landings per trap (in pounds) during the closure period.

Exhibit 6-25 presents a concise summary of the commercial fishing activity each closure would be likely to affect. Exhibit 6-28 presents estimates of the costs associated with each closure.

Comment 126: One commenter requested that the FEIS include a discussion on the full range of Team and peer reviewer comments on the limitations of the model.

Response: As the EIS notes, documentation for the Vertical Line Model, including a detailed discussion of the model's limitations, is available online at http://www.nero.noaa.gov/protected/whaletrp/eis2013/index.html. The peer review of an earlier draft of the model's documentation is available at the same site.

A summary of each of the 16 public hearings held in 2013 to solicit comments on the DEIS is available online at http://www.nero.noaa.gov/protected/whaletrp/vlr2013/index.html. These summaries include comments made on the limitations of the Vertical Line Model, as well as other aspects of the DEIS.

Written comments on the DEIS are publicly available as part of the regulatory docket for this rulemaking. Volume II of the FEIS (this document) provides a summary of these comments, along with NMFS' response. This includes comments submitted by members of the Atlantic Large Whale Take Reduction Team, as well as comments submitted by others, concerning the limitations of the Vertical Line Model.

Comment 127: One commenter stated that there is no part of LMA3 that is within the 3-12 mile zone so this should be corrected in the traps per trawl proposals.

Response: This correction has been made.

Comment 128: One commenter requested the FEIS include a more thorough explanation and discussion on the following: impacts to sea turtles, rationale for continuing to exempt portions of Maine waters, recent fishery management actions, ocean noise, offshore energy development, and impacts and risks of chronic entanglements.

Response: The FEIS was updated to included a more thorough explanation.

Comment 129: One commenter commented that NMFS did not provide a sufficient variety of alternatives in the DEIS. The commenter suggested additional alternatives including reducing co-occurrence by 50%, mandating reductions in the amount of gear that can be used and season it is fished, and addressing gillnets.

Response: NMFS believes that the number of alternatives analyzed in the EIS was adequate. The alternatives analyzed were a combination of stakeholder proposals developed by the Team during the course of several meetings and the result of input received during the public scoping meetings.

Comment 130 : One commenter requested that the FEIS include adjusted co-occurrence scores for the mid-Atlantic as was done for the Northeast to account for areas with minimal to no survey effort.

Response: NMFS considered expanding the analysis presented in Appendix 5-B of the EIS to include the mid-Atlantic, but concluded that to do so would be overly speculative, given the relative dearth of both survey effort and opportunistic sightings data in the region for much of year. Rather than suggest a greater understanding of the potential for co-occurrence in the mid-Atlantic than the data warrant, NMFS chose to limit the analysis to the Northeast, where the effort to fill gaps in the effort-corrected sightings data would be better informed by opportunistic data on the presence of whales. Note too that the primary purpose of the analysis presented in Appendix 5-B is to examine how the use of adjusted sightings data would influence NMFS' assessment of the impact of the vertical line management measures under consideration. With the exception of gear marking, none of these measures apply to mid-Atlantic waters. Thus, while development of adjusted sightings scores for the mid-Atlantic would alter the estimates of absolute impacts on co-occurrence, it would have no effect on the relative ranking of alternatives with respect to this measure.

1.1.16 Comments on the Co-Occurrence Model

Comment 131: One commenter stated that the projections of risk reduction from a model are not accurate and don't work in the real world.

Response: NMFS acknowledges the uncertainties inherent in any attempt to model complex interrelationships, such as that between commercial fishing activity and entanglement. Through its research programs, NMFS has invested considerable resources in improving understanding of these issues. While significant uncertainties remain, NMFS believes that the co-occurrence model makes appropriate use of the information available to help guide development and assessment of alternative management measures. As better information is developed, NMFS will make every effort to incorporate it into the analytic tools it employs to inform the development of the ALWTRP.

Comment 132: A few commenters commented that there is a lack of statistical conclusion in the model citing the comments of one of the peer reviewers that "this version of model is not ready to be used in a management application until its performance has been validated or compared with other approaches".

Response: The data the Vertical Line Model employs were derived from a variety of sources, including fishing reports, surveys, and expert judgment, not all of which are amenable to statistical analysis; thus, it is not possible to generate statistical confidence intervals that characterize the uncertainty in the model's output. In addition, the availability of data to validate the model is extremely limited. When such information is available – as was the case with data on vertical line use in Massachusetts – NMFS has employed it to refine the model. NMFS has also shared information with other researchers who are attempting to model various indicators of entanglement risk, and has invited them to share information on their approaches with the ALWTRT. To NMFS knowledge, however, these

models have yet to be completed. Until they are more fully developed, attempts to validate the Vertical Line Model through comparisons with these models would be premature. NMFS will consider the recommendation to make such comparisons in future model development, analysis, and rulemaking efforts.

Comment 133: One commenter stated that the data used in the model is not sufficient for the intended purpose and stated that the use of Right Whale Consortium data only for all whale species was not appropriate. Inclusion of data outside this database would provide a more balanced and complete picture.

Response: NMFS incorporated the Right Whale Consortium data into the Vertical Line Model at the recommendation of the ALWTRT. Members of the team have also expressed interest in expanding the data the model considers to include information on the presence or distribution of whales from other sources, such as acoustic monitoring systems. NMFS recognizes the potential value of this information, but notes that incorporation of data from these sources raises issues of comparability and consistency that it has yet to investigate and resolve. Addressing these issues and incorporating the data into the model would delay action on modification of the ALWTRP, which would be inconsistent with the timeline for action to which NMFS has committed. NMFS believes that the information the model incorporates at this time is sufficient to guide development and assessment of alternative management measures. NMFS will consider the recommendation to incorporate additional data in future model development, analysis, and rulemaking efforts.

Comment 134: One commenter suggested that after a final rule has been adopted that NMFS revise the current model or develop a new one more suitable to estimate the extent to which co-occurrence between whales and gear would be reduced and the uncertainty of this estimate.

Response: NMFS will consider this recommendation in future model development, analysis, and rulemaking efforts.

Comment 135: One commenter requested that a study be completed to validate the model against results of an alternative co-occurrence model at least for LMA 1. Based on those results the model should be modified and co-occurrence estimates recalculated.

Response: As noted above, NMFS will consider this recommendation in future model development, analysis, and rulemaking efforts.

Comment 136: One commenter stated that the model is not an accurate method to detect whales as it only relies on visual sightings. It's possible that other important areas exist and alternate technology to detect high risk areas need to be included in the model.

Response: The sightings dataset upon which the model relies was incorporated into the model at the recommendation of the ALWTRT. Members of the team have also expressed interest in expanding the data the model considers to include information on the presence or distribution of whales from other sources, such as acoustic monitoring systems. NMFS recognizes the potential value of this information, but notes that incorporation of data

from these sources raises issues of comparability and consistency that it has yet to investigate and resolve. Addressing these issues and incorporating the data into the model would delay action on modification of the ALWTRP, which would be inconsistent with the timeline for action to which NMFS has committed. NMFS believes that the information the model incorporates at this time is sufficient to guide development and assessment of alternative management measures. NMFS will consider the recommendation to incorporate additional data in future model development, analysis, and rulemaking efforts.

Comment 137: A few commenters had concerns regarding the adequacy of the model and commented that NMFS should discuss the model's limitations and how they affect model output.

Response: The documentation for the Vertical Line Model, including a discussion of the model's limitations, is available online at http://www.nero.noaa.gov/protected/whaletrp/eis2013/index.html. The peer review of an earlier draft of the model's documentation is available at the same site.

Comment 138: A few commenters commented that additional data and approaches should be used to strengthen the accuracy of the model. The commenters stated that the model was based on outdated data and had concerns over averaging fishing effort across large areas as well as the failure to include opportunistic, acoustic, and telemetry data on whale distribution.

Response: As noted above, NMFS will consider these recommendations in future model development, analysis, and rulemaking efforts.

Comment 139: A few commenters commented that the model fails to provide adequate information regarding uncertainty. The commenter suggested that NMFS provide a qualitative score that ranks the quality of data that was input into each analysis cell.

Response: NMFS will consider this recommendation in future model development, analysis, and rulemaking efforts. NMFS notes, however, that the model's documentation already includes a detailed description of the fishing effort data upon which the model relies, along with detailed discussions of the limitations of the data. Similarly, the documentation discusses the limitations of the whale sightings data and presents a detailed analysis showing the effect of adjusting for key data gaps and uncertainties. NMFS believes that this information provides a more than adequate description of the limitations of the model.

Comment 140: A few commenters commented that the model appears sensitive to the presence of whales but a basic examination of the sensitivity of the model to all inputs would be helpful. NMFS needs to evaluate uncertainty even if the evaluation is qualitative in nature.

Response: NMFS will consider this recommendation in future model development, analysis, and rulemaking efforts.

Comment 141: A few commenters commented that the model should include all data on distribution of whales, press states for data on fishing activity and investigate the possibility of modeling activity in relation to physical parameters and environmental conditions to address data gaps. The commenters also suggested investigating alternative models that calculate risk.

Response: As noted above, the whale sightings dataset upon which the model relies was incorporated into the model at the recommendation of the ALWTRT. Members of the team have also expressed interest in expanding the data the model considers to include information on the presence or distribution of whales from other sources, and to include information on physical parameters (e.g., depth) or environmental conditions (e.g., the presence of prey species) that may identify areas that whales are likely to frequent. NMFS recognizes the potential value of this information and will consider this recommendation in future model development, analysis, and rulemaking efforts.

NMFS has collaborated closely with state fisheries managers to obtain all available data on fishing activity (and other parameters) for use in the Vertical Line Model. Similarly, NMFS has shared information with other researchers who are attempting to model various indicators of entanglement risk, and has invited them to share information on their approaches with the ALWTRT. NMFS will continue to work collaboratively with these groups to ensure that development of the ALWTRP takes appropriate advantage of the information and insights they can provide.

1.2 REFERENCES

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Knowlton, A., S. Landry, J. Robbins, and T. Werner. 2011. Breaking strength and diameter of rope taken off entangled North Atlantic right whales in relation to wound severity and age. Pages 161 *in* 19th Biennial Conference on the Biology of Marine Mammals, Tampa, Florida.

McCarron, P. and H. Tetreault, Lobster Pot Gear Configurations in the Gulf of Maine, 2012.

Morano, J.L., A.N. Rice, J.T. Tielens, B.J. Estabrook, A. Murray, B.L. Roberts and C.W. Clark. 2012. Acoustically Detected Year-Round Presence of Right Whales in an Urbanized Migration Corridor. Conservation Biology 28:698-707.

Mussoline, S.E., D. Risch, C.W. Clark, L.T. Hatch, M.T. Weinrich, D. N. Wiley, M.A. Thompson, P.J. Corkeron and S.M. Van Parijs. 2012. Seasonal and diel variation of the North Atlantic right whale up-call: implications for management and conservation in the Northwestern Atlantic Ocean. Endangered Species Research 17:17-26.

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NMFS held a 90-day scoping/public comment period following the June 14, 2011, publication in the *Federal Register* (76 FR 34654) of the agency's Notice of Intent to prepare an Environmental Impact Statement (EIS) for the Atlantic Large Whale Take Reduction Plan (ALWTRP). Twenty-three sets of written comments were submitted to the agency. In addition to written comments, NMFS held fifteen public scoping meetings[1] during the 90-day scoping/public comment period along the Atlantic Coast. The public hearings were held as follows:

- Machias, Maine, on July 11, 2011 (30 attendees)
- Ellsworth, Maine, on July 12, 2011 (50 attendees)
- Rockland, Maine, on July 13, 2011 (30 attendees)
- Portland, Maine, on July 14, 2011 (15 attendees)
- Providence, Rhode Island, on July 18, 2011 (4 attendees)
- Plymouth, Massachusetts, on July 19, 2011 (30 attendees)
- Chatham, Massachusetts, on July 20, 2011 (30 attendees)
- Gloucester, Massachusetts, on July 21, 2011 (35 attendees)
- Portsmouth, New Hampshire, on July 22, 2011 (20 attendees)
- Morehead City, North Carolina, on July 26, 2011 (8 attendees)
- Virginia Beach, Virginia, on July 27, 2011 (5 attendees)
- Ocean View, Delaware, on July 28, 2011 (9 attendees)
- Manahawkin, New Jersey, on July 29, 2011 (4 attendees)
- Cape Canaveral, Florida, on August 22, 2011 (15 attendees)
- Jacksonville, Florida, on August 23, 2011 (10 attendees)
- Garden City, Georgia, on August 24, 2011 (8 attendees)

NMFS received oral testimony during these public hearings. Due to the large number of oral comments, they are organized according to the following specific topics:

- Exemptions
- Safety
- Monitoring
- Gear Marking
- Vertical Line Model
- Gear Modifications

[1] The New Hampshire Fish and Game Department held a scoping meeting that was attended by NMFS staff.

- General Comments

This appendix summarizes the written and oral comments, presenting them in two separate tables. Each comment is assigned to one of five categories:

- **Analyzed**: Comment is addressed in the DEIS.
- **Proposed Alternatives**: Comment is an element in one or more of the proposed alternatives.
- **Rejected Alternatives**: Comment relates to regulatory alternatives considered but rejected by NMFS.
- **Outside of Scope**: Comment falls outside the scope of the current regulatory action.
- **Duly Noted**: NMFS acknowledges the comment, but responding is difficult because the commentor did not articulate specific concerns; did not suggest concrete alternatives; or did not substantiate the position advocated.

The Response to Comments received during the public comment period for the Notice of Intent to prepare an EIS should be considered as a whole, for it collectively reflects NMFS' consideration of public comments. In some cases, NMFS has combined or paraphrased comments. All comments received during the public comment period and the public hearings have been fully considered. NMFS has addressed all written and oral comments. Please note that some commenters submitted written comments and offered oral testimony; thus, some of the comments are duplicative. In these cases, NMFS summarized the comments and responses in both the written and oral comments.

EXHIBIT 2-1

SUMMARY OF WRITTEN SCOPING COMMENTS RECEIVED

Original Comment Number	Specific Comment Component	Category	FEIS Section Where Addressed
1	Action can't wait until 2014. Agency is spending a lot of tax payer dollars.	Duly Noted	---
	Request a two-day meeting on webinar instead of all the scoping meetings so the entire country can join in.	Duly Noted	---
2	Commenter supported the status quo (no change) option for the lobster trap/pot fishery.	Duly Noted	---
3	Thoroughly consider economic and operation impacts of new regulations.	Analyzed	Chap. 6
	Avoid a one size fits all approach and identify options that will be feasible and safe for industry.	Analyzed	Chap. 3
4	Concerned that criteria for whale protection are unrealistic and ungrounded in science. Unsure what the correct level of vertical line reduction or target is.	Duly Noted	---
5	Consider exempting more areas from the ALWTRP. Commenter has not seen any whales inside 8 miles along the Maine coast.	Proposed Alternatives	Chap. 3
6	Commenter supported the status quo (no change) option for the lobster trap/pot fishery. Verticals lines have been reduced through trap reductions.	Duly Noted	---
7	Commenter supported the status quo (no change) option for the lobster trap/pot fishery.	Duly Noted	---
8	South Carolina's coast differs from other states and should be considered independently.	Duly Noted	---
	Landings data do not accurately reflect how many traps are offshore in South Carolina waters.	Analyzed	Chap. 4

EXHIBIT 2-1

SUMMARY OF WRITTEN SCOPING COMMENTS RECEIVED

Original Comment Number	Specific Comment Component	Category	FEIS Section Where Addressed
9	Commenter gave a description of the current black sea bass fishery in Northeast Florida suggesting that the risk of entanglement is non-existent because the fishery is so small.	Duly Noted	---
	Suggest making vertical line out of biodegradable material.	Outside of Scope	---
10	The Mid-Atlantic poses less risk to whales from fishing. Management measures should focus on hot spots.	Proposed Alternatives	Chap. 3
	Do not reduce the number of verticals line, instead improve gear marking and reporting.	Proposed Alternatives	Chap. 3
	Support increasing the number of marks on the line to improve gear marking. Do not require a point specific distance as this would make it hard for enforcement.	Proposed Alternatives	Chap. 3
	Recommend a survey approach for monitoring or make changes to the observer forms.	Duly Noted	---
11	Regulations should target areas of high whale density and be seasonal.	Proposed Alternatives	Chap. 3
	Increasing number of traps per trawl will be difficult for inshore waters, may be easier past the 50f curve.	Rejected Alternatives	---
12	Supports the development of the vertical line model and encourages NOAA to enhance whale population and data collection in the Mid-Atlantic.	Duly Noted	---
13	Requiring one endline is unsafe.	Rejected Alternatives	---

EXHIBIT 2-1

SUMMARY OF WRITTEN SCOPING COMMENTS RECEIVED

Original Comment Number	Specific Comment Component	Category	FEIS Section Where Addressed
14	Should be allowed to land dragged lobsters in Maine.	Outside of Scope	---
15	Commenter has fished for over 30 yrs and has never seen a whale. Commenter prefers status quo.	Duly Noted	---
16	Commenter concerned about development of conservation measures without current and comprehensive information regarding known impacts of fishing gear on the whale population. Supports the status quo until decisions can be informed by more complete information.	Duly Noted	---
17	Commenter supports status quo. There is no direct correlation that can be made between a reduction in vertical lines and a reduction in whale harm. NMFS is guessing what the results of the plan will be.	Duly Noted	---
18	Give greater weight to the protection of right whales when developing management measures.	Alternatives Rejected	---
	Need to estimate occurrence rates greater than zero for whales within 20 miles of the Maine coast.	Duly Noted	---
	Commenter proposed management areas by SPUE.	Analyzed	Chap. 3
	Suggested closures, caps on the numbers of endlines, one endline per trap, and a minimum number of traps per endline as possible management measures.	Analyzed	Chap. 3
	Require consistent reporting.	Proposed Alternatives	Chap. 3
	Improve gear marking requirements.	Proposed Alternatives	Chap. 3
19	The model should be used in areas where there is consistent and reliable data. The model is less useful in areas with data gaps. NOAA needs to advocate for collection of whale density data to fill the gaps in the Mid-Atlantic. Until then, the agency should potentially look to other methods for assessing risk and support careful monitoring.	Duly Noted	--
20	Where are the data to show statistical significance that the sinking groundline modification made an impact? Wait to see what the effects of the groundline modification are before imposing new restrictions.	Duly Noted	--
	Should weigh effects of entanglements of whales based on population size. 10 right whales affected are much worse than 10 humpback whales.	Alternatives Rejected	--

EXHIBIT 2-1

SUMMARY OF WRITTEN SCOPING COMMENTS RECEIVED

Original Comment Number	Specific Comment Component	Category	FEIS Section Where Addressed
21	Strategy should focus on risks arising from spatial and temporal correspondence between right whales and lobster gear.	Rejected Alternatives	---
	Measures should take into account whale behavior. Topography, presence of nutrients, and other factors affecting risk of entanglement with fishing gear.	Analyzed	Chap. 9
	Assess effectiveness of existing measures in combination with proposed measures.	Analyzed	Chap. 9
	Conduct evaluation of costs and benefits of existing and proposed measures taking into account experiences of fishermen in Maine waters.	Analyzed	Chap. 6
	Measures need to consider the conservation benefit, economics, safety/feasibility, flexibility, and have a periodic review and revision.	Proposed Alternatives	Chap. 5, 6, 7
	Maintain status quo in Maine state waters.	Rejected Alternatives	---
	Implement aggressive measures in areas where fishing gear and whales are most likely to occur (outside 50 f curve).	Analyzed	Chap. 3
	Proposed gear modifications such as using weaker rope and using a small amount of float rope.	Analyzed	Chap. 3
	Enhance gear marking and reporting.	Proposed Alternatives	Chap. 3
	Use second endline for large trawls for safety reasons.	Proposed Alternatives	Chap. 3
22	Plan to address the risk from vertical lines is long overdue.	Duly Noted	---
	NOAA fails to provide a target for risk reduction so this prevents understanding of how to judge success of plan.	Duly Noted	---
	Give management priority to right whales.	Rejected Alternatives	---
	Question the sufficiency of the data underlying the risk assessment in the model.	Duly Noted	---
	In favor of large seasonal and temporal areas rather than smaller blocks. Should explore recommendations to reducing amount of gear in the water while leaving catch rates unaffected.	Proposed Alternatives	Chap. 3
	The recent Biological Opinion on fisheries should not rely on vertical line rulemaking as basis for no jeopardy conclusion.	Outside of Scope	---
	Gear Marking should be frequent enough that line removed from whales is likely to be able to be identified to fishery or geographic area.	Proposed Alternatives	Chap. 3
	Should improve consistency of reporting.	Proposed Alternatives	Chap. 3

EXHIBIT 2-1

SUMMARY OF WRITTEN SCOPING COMMENTS RECEIVED

Original Comment Number	Specific Comment Component	Category	FEIS Section Where Addressed
23	Commenter supports the use of the vertical line model to define areas that will be managed. Does not support the use of closures as a management measure.	Analyzed	Chap. 3
	Should be managed year round. Fishermen cannot be expected to change gear several times a year to accommodate seasonal regulation changes. Measures should vary by LMAs and zones in Maine.	Proposed Alternatives	Chap. 3
	Supports changes to the gear marking strategy.	Proposed Alternatives	Chap. 3
	Supports idea of increased data collection as long as there is a funding source for the implementation of this program.	Proposed Alternatives	Chap. 3

Category Key:
Analyzed = Comment is addressed in the FEIS.
Proposed Alternatives = Comment is an element in one or more of the proposed alternatives.
Rejected Alternatives = Comment relates to regulatory alternatives considered but rejected by NMFS.
Outside of Scope = Comment falls outside the scope of the current regulatory action.
Duly Noted = NMFS acknowledges the comment, but responding is difficult because the commenter did not articulate specific concerns; did not suggest concrete alternatives; or did not substantiate the position advocated.

EXHIBIT 2-2

SUMMARY OF ORAL COMMENTS RECEIVED DURING EIS SCOPING PROCESS

Topic Area	SPECIFIC COMMENT COMPONENT	Category	FEIS Section Where Addressed
Exemptions	Commenters during the Maine scoping meetings wanted the Maine exemption line moved to the 3-mile line.	Rejected Alternatives	-----
	Commenters expressed a desire to have an exemption in New Hampshire state waters.	Analyzed	Chap. 3
	Allow floating groundline back in some areas.	Outside of Scope	----
Safety	Safety concerns with increased traps per trawl in some areas. Two endlines are needed for safety and gear loss reasons.	Duly Noted	-----
Monitoring	Have entanglements decreased since the sinking groundline requirement? Monitor past requirements before implementing new ones.	Duly Noted	----
	New Hampshire and Massachusetts feel they are unfairly picked on because of the greater whale sighting survey effort and mandatory reporting requirements in their area. Desire to have survey effort in other areas.	Duly Noted	----
	Agreement that reporting is necessary. No problem with the current reporting questions or frequency of survey methods.	Proposed Alternatives	Chap. 3
	Disagreement with whether the reporting should be mandatory or voluntary. Mandatory might causing inaccuracy.	Duly Noted	----
Gear Marking	General support for a change to the current gear marking scheme.	Proposed Alternatives	Chap. 3
	Desire for more regional gear marking.	Duly Noted	----
	Continue to allow cheap gear marking methods.	Proposed Alternatives	Chap 3
	Potentially mark with 2 marks every 30-40 fathoms or at top, middle, and bottom of line. One mark for state, and other mark to represent gear type.	Proposed Alternatives	Chap 3
Vertical Line Model	Support for looking at finer scale management areas and allowing states to submit their own proposals.	Duly Noted	----
	Agree with the use of the co-occurrence layer.	Analyzed	Chap. 3
	Support of seasonal measures.	Rejected Alternatives	----
	Need more marine mammal survey effort in Mid-Atlantic.	Duly Noted	----

	Some commenters wanted the model to focus on right whales only since a humpback whale status review is occurring.	Duly Noted	----

EXHIBIT 2-2

SUMMARY OF ORAL COMMENTS RECEIVED DURING 2011 SCOPING MEETINGS

Topic Area	SPECIFIC COMMENT COMPONENT	Category	FEIS Section Where Addressed
Gear Modifications	Suggest weaker breaking strength for top 1/3rd of rope.	Duly Noted	---
	Have a weak link at the top 1/3rd of the endline.	Duly Noted	---
	Some support for 1100 lbs breaking strength.	Duly Noted	----
	Could shorten lines closest from surface link from buoy to toggle and reduce the amount of line in the water that way.	Duly Noted	----
	In Cape Cod Bay, could eliminate sinking rope requirement in top 2/3rd of endline.	Duly Noted	----
General Comments	Some concern over lack of target or goal for vertical line reduction. Some think a target will be set in the future and whatever is proposed now will not be enough to hit this future target. Others understood the idea of trying to do what is realistic and not setting a target.	Duly Noted	----
	No additional measures are necessary due to proposed trap reductions that could potentially reduce the risk of entanglement.	Duly Noted	----
	The government could perform a buyout to reduce latent effort.	Duly Noted	----
	Get rid of singles.	Proposed Alternatives	Chap. 3
	Black sea bass gear is brought in at night so that fishery has already reduced risk of entanglement.	Duly Noted	----
	Commenter wanted to know what was necessary to amend MMPA.	Outside of Scope	---
	Ship strikes are a problem as well.	Duly Noted	---
	Commenter wanted to know what Canada is doing to reduce level of entanglement in Canadian waters.	Duly Noted	----

Category Key:
Analyzed = Comment is addressed in the FEIS.
Proposed Alternatives = Comment is an element in one or more of the proposed alternatives.
Rejected Alternatives = Comment relates to regulatory alternatives considered but rejected by NMFS.
Outside of Scope = Comment falls outside the scope of the current regulatory action.
Duly Noted = NMFS acknowledges the comment, but responding is difficult because the commenter did not articulate specific concerns; did not suggest concrete alternatives; or did not substantiate the position advocated.

NMFS received 533 letters from commenters on the Draft Environmental Impact Statement (DEIS) and proposed rule via Regulations.gov, letter, fax, or email. Additionally, two form letters were received on the DEIS via letter and email; approximately 27,500 of one form letter, 13,500 of another form letter, and approximately 1,300 slight variations to the form letters. A summary of all comments received on the DEIS are included in Chapter 1. Copies of the 533 letters and a copy of the form letters are included below. Transcripts on the public hearings are available upon request.

THE HUMANE SOCIETY
OF THE UNITED STATES

RECEIVED
SEP 16 2013
BY:_____

HSUS
FORM LETTER

Eric L. Bernthal, Esq.
Chair of the Board

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Kathleen M. Linehan, Esq.
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Sharon Lee Patrick
Judy J. Peil
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Andrew Weinstein
Jason Weiss
David O. Wiebers, M.D.
Lona Williams

September 12, 2013

Mary Colligan
Assistant Regional Administrator
Protected Resources
NMFS Northeast Region
55 Great Republic Drive
Gloucester, MA 01930

Re: Taking of Marine Mammals Incidental to Commercial Fishing Operations; Atlantic Large Whale Take Reduction Plan Regulations, NOAA–NMFS–2013–0095

Dear Ms. Colligan,

On behalf of The Humane Society of the United States, the nation's largest animal protection organization, I am writing to provide letters from our supporters on the proposal to amend the regulations implementing the Atlantic Large Whale Take Reduction Plan. Several thousands of individuals sent comments directly to our organization, and we are submitting them to you here on a disc. We understand these comments will be uploaded to your website and reviewed during your consideration of the petition.

The disc contains a total of 28,823 comments. Of those, 27,583 are identical to the below exemplar, and are contained in one folder titled "Unedited Letters".

Exemplar:

> To National Marine Fisheries Service:
>
> Thank you for proposing to restrict fishing gear to protect endangered right whales. I support the restrictions you propose but I oppose exempting large areas in New Hampshire and Maine from having to protect the whales. I also support marking fishing ropes so we know where whales become entangled.
>
> Fewer than 500 endangered North Atlantic right whales remain in a population that numbered in the thousands before commercial whaling. Even though we are not hunting them, the heavy ropes in commercial lobster and gillnet fishing still drown or seriously injure them and are a serious threat to their recovery.
>
> It is important to limit commercial fishing gear in the seasons and areas where right whales gather to feed and to give birth. All coastal states in the northeast and

southeast should have the same protections. It is also important to require that ropes be marked in many different areas so that, if whales still become entangled, we can learn more about where they are at greatest risk.

Thank you for the opportunity to provide input. I look forward to hearing your final decision.

Sincerely,

An additional 1,242 comments are contained in a folder titled, "Edited Letters". These comments contain similar statements to the unedited ones, but were amended by our members to include further information.

Thank you for providing our members the opportunity to weigh in on the proposed rule. If you need any further information or materials, please do not hesitate to let me know.

Sincerely,



Gillian Lyons
Regulatory Specialist
The Humane Society of the United States
glyons@humanesociety.org

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale proposed rule

carolynbarnes6@aim.com <carolynbarnes6@aim.com> Wed, Aug 21, 2013 at 6:53 AM
To: nmfs.ner.whale@noaa.gov

IFAW FORM LETTER

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

As a supporter of the International Fund for Animal Welfare (IFAW), and a concerned member of the public, I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

With human-induced serious injury and mortality due to incidental entanglement in fishing gear exceeding the recommended Potential Biological Removal (PBR) level defined for these species it is imperative that more is done to reduce this threat. Therefore, I support the measures laid out in NOAA's preferred alternative, Alternative 5, and ask that the agency include these measures as well as those described below in the final rule making process.

Of particular importance for inclusion are the seasonal closures for Jordan Basin, Jeffrey's Ledge and Cape Cod Bay/Outer Cape, aimed at reducing fishing effort in key areas known to have high concentrations of right whales co-occurring with high fishing activity. Without these closures, the recommended measures are unlikely to achieve the necessary reduction in risk required to reduce take below PBR. So I strongly urge NOAA to include these closures as described in Alternative 5 in the final rule.

While the proposed rule makes many strides to improve upon current regulations, there are a few areas that are insufficient in accomplishing this goal. The exemptions included for Maine and New Hampshire state waters are of major concern, particularly as Maine state waters include approximately 50% of all recorded vertical lines in the Northeast region. This high number of lines, even in waters infrequently traversed by whales, represents a significant risk that should be addressed in the final rule.

Likewise, the proposed gear-marking scheme that only adds new fishing line markings for these state exempted waters is likely to fall short of the needs of the scientists, fishermen and NOAA alike. For recorded large whale entanglements from 1997 to 2008, the type of fishery and location where the gear was set was only able to be determined for 15% of all cases. To achieve targeted spatial and temporal regulations with the biggest impact we need to have more information about what type of gear is entangling these whales and where they are being entangled. Therefore, I encourage NOAA to include additional gear marking for trap/pot and gillnet fisheries, particularly in the Northeast to allow scientists to better make these determinations.

Furthermore, I am concerned by the patchwork of regulations set up for the Southeast region. By establishing different regulations across critical habitat, state waters and federal waters, the proposed rule will make it more challenging for fishermen to adjust their gear accordingly, while also making enforcement more difficult. And with many of the proposed "restrictions" in the Southeast and Mid-Atlantic calling for retaining the status quo, the risk in these areas, particularly for right whale mother and calf pairs and humpback whales, respectively, does not seem to be adequately addressed.

However, all of these efforts will go to waste without continued and improved enforcement and monitoring. NOAA needs to increase their effort and funding for enforcement to improve compliance with existing regulations, while also establishing plans for enforcement of these new regulations. As part of this effort, ensuring continued funding for large whale research and disentanglement is imperative. Boat and aerial surveys funded by private and federal research grants allow scientists to track changes in the whale populations, monitor their status and inform our understanding of the impact and effectiveness of these regulations. Without these surveys, and support of large whale disentanglement teams, many more injured whales will go unaided. With the North Atlantic right whale just beginning to show signs of slow recovery, now is not the time to back down on these efforts.

While this proposed rule is intended to only address the threat of vertical lines associated with trap and pot fisheries, the cumulative impact from gillnet fisheries and other human activities, such as offshore wind farms, needs to be more fully accounted for before final rule making is completed.

I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5 with the additional points for strengthening this proposal as described above.

Sincerely,

carolyn barnes
186 county road 3a
greene NY 13778
US
carolynbarnes6@aim.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

5 copie s of w hale re duction plan

2 messages

antpinny@comcast.net <antpinny@comcast.net> Sat, Jul 20, 2013 at 1:30 PM
To: NMFS.NER.whale@noaa.gov

To the NMFS,

I cannot believe that my husband got 5 copies by mail of the same letter. That's a waste of tax payers money to the tune of 46 cents postage times 5 for each fishermen.Maybe you should worry about reduction of mail rather worry about whale entanglement. Our fishermen watch out for our whales and other fish.Why is it always the little guys fault.We have huge tankers on the water what do they do nothing. Wow this is getting old god put the whales here not you so stop making it about commercial fishing gear there are alot of factors in this problem.Stop putting it all on the fishermen lay blame on the big tankers and other factors.I am not sure how you know how many whales are in the ocean you cannot count them. I wish that's all i had to worry about is a whale.Our fishermen have to feed there families and all you want to do is make it more expensive to do so.You should realize the fisher men are on the whales side which side are you on making more money for yourselves and big government and the scientist. I guess you will be happy when we can no longer fish.Then all your rich sail boat friends and speed boats can have the ocean to yourselves.Then see what happens. Our fishermen's are the best thing we have they care about our oceans too.

Thank you for your time.

Penny Wallace

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov> Sat, Jul 20, 2013 at 1:30 PM
To: antpinny@comcast.net

Thank for you for submitting comments on the proposed rule and DEIS to amend the Atlantic Large Whale Take Reduction Plan.

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

alw trp large whale rule

2 messages

Beverly Lynch <braelynch@yahoo.com> Thu, Jul 25, 2013 at 12:37 PM
Reply-To: Beverly Lynch <braelynch@yahoo.com>
To: "NMFS.NER.whale@noaa.gov" <NMFS.NER.whale@noaa.gov>

We prefer alternative 1, no action
The other alternatives require fishermen to spend money on weaker links and sinking rope. Weak links cause them to lose gear. Fishermen can't afford to lose gear or spend more money. Bringing gear in at the end of each day would also cost income. There are fewer fishermen and more whales. As whale populations increase, more will be injured.

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov> Thu, Jul 25, 2013 at 12:37 PM
To: braelynch@yahoo.com

Thank for you for submitting comments on the proposed rule and DEIS to amend the Atlantic Large Whale Take Reduction Plan.



NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

(no subje ct)

2 messages

Dustypup01@aol.com <Dustypup01@aol.com> Thu, Jul 25, 2013 at 2:09 PM
To: NMFS.NER.whale@noaa.gov

I chose alternative option 1. NO ACTION

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov> Thu, Jul 25, 2013 at 2:09 PM
To: Dustypup01@aol.com

Thank for you for submitting comments on the proposed rule and DEIS to amend the Atlantic Large Whale Take Reduction Plan.

PUBLIC SUBMISSION

As of: July 29, 2013
Received: July 17, 2013
Status: Pending_Post
Tracking No. 1jx-86iq-u0vc
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0001
Comment from Drew Martin

Submitter Information

Name: Drew A Martin
Address:
Lake Worth, FL,

General Comment

I support changes that improve the health of whales and reduce the risk of entanglement. I believe that these changes will reduce whale mortality.

I encourage you to move forward with changes that will protect our whale population. I support reducing the number of vertical lines in the ocean and expanding protected areas.

Whales are under pressure and have suffered from entanglement. This is particularly true of young whales.

I oppose the no-action alternative. I believe that some action to improve whale protections is necessary. Alternative 5 seems reasonable. I support taking action and moving forward with improved regulations to protect Large Whales from being harmed.

PUBLIC SUBMISSION

As of: July 29, 2013
Received: July 20, 2013
Status: Pending_Post
Tracking No. 1jx-86ki-ftxv
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0002
Comment from Alex Brown

Submitter Information

Name: Alex Brown
Address:
46 Franklin St
Provincetown, MA, 02657
Email: vicfishab@hotmail.com
Phone: 508-487-0471
Organization: VICTORY FISHERIES

General Comment

Dear Ms, Colligan,
I am a small boat/skiff lobsterman working out of the port of Provincetown. I now lobster out of a 19' skiff due to circumstances beyond my control, anyway I am very disturbed about the fact of trying to fish any amount of trawls out of my boat. I would have way to much line on the deck to safely haul and service my gear never mind the weight of multiple traps on the rail of the boat. As I am fishing 60' of water you can figurre that I would have an un godly amount of line on deck never mind the hazaerd ofsetting the gear back. If you guy's are hell bent on putting this regulation in, in the spirit of compromize would you consider exempting people who fish in 24' and under vessel. We don't and arn't able to fish the max amount allowed for traps anyway. Also if you again are hell bent on putting this rule in anyway I hope you are going to extend this to the recreational sector, approx 4500 rec permits issued each year with potential of 10 + traps fished per license that come to 4500+ traps and lines that could potentialy cause an entanglement too!
My hope is that you guy's will apply common sense here.
Thank You

PUBLIC SUBMISSION

As of: July 29, 2013
Received: July 23, 2013
Status: Pending_Post
Tracking No. 1jx-86mj-hhlk
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0003
Comment from Jarrett Drake

Submitter Information

Name: Jarrett Drake
Address:
6 County Road
Marion, MA, 02738
Email: jarrettcdrake@verizon.net

General Comment

I am writing in support of option 1: status quo. At the present, endangered whale populations have increased (since the ban on whaling) as a result of measures taken by fishermen and maritime commerce. These measures include sinking ground lines, breakaway weak links, seasonal area closures, and reduced ship speeds. All of these measures are working and will continue to work under status quo. There is no need to further hinder and financially strain our fishermen or our economy with a new set of rules.

Please resist the pressures of environmental groups who will stop at nothing until every possible risk is averted, basically no fishing or maritime commerce. The MMPA and ESA have become tools for these groups and are being abused by them to enforce their will.

We need to address the specific wording of the MMPA and ESA to acknowledge that endangered species are rebounding and that what has been done so far is working. We do not need to keep adding more measures to them.

Acknowledging our current successes, I again support option 1: status quo.

PUBLIC SUBMISSION

As of: July 29, 2013
Received: July 26, 2013
Status: Pending_Post
Tracking No. 1jx-86oj-59ov
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0004
Comment from Brendan Adams

Submitter Information

Name: Brendan Adams
Address:
Eastham, MA, 02642
Organization: Lobsterman

General Comment

Hello,
This is my public comment for the ALWTRP. I have taken the time to read both the EIS and the proposed changes to the federal register twice. In the past lobstermen have worked hard to comply with helping reduce the interaction between their gear and marine mammals. We seem to be in a really good place right now with what we have done to reduce entanglement and mortality to whales, but now a plan has been concocted which may or may not reduce entanglement, but may increase mortality if implemented. It is a statistical fact that a marine mammal caught in a "single" trap arrangement is much more likely to get free without injury than a marine mammal tangled with a heavier burden. That being said, traditionally some lobstermen set all singles, some set all trawls, and some set some of each. One of the problems with this proposal is that it absolutely creates a safety issue for fishermen fishing alone and/or in vessels 25 feet in length or smaller. There are stability issues involved, and a real chance of a vessel capsizing due to distribution of weight and weather conditions - I have seen it happen. Also, setting trawls alone is a very dangerous concept even on a larger vessel. Is the life of a man worth less than that of a whale because one is bigger than the other? There are the financial burdens of converting to trawls. The cost would be greatest to fishermen that fish all singles/fish alone. Gear conflicts/territorial disputes would absolutely be even more common. Lets not forget that everything except the price of lobsters has gone up in the past ten years. Some smaller fishing operations would be forced to sell out or retire at the whim of a bureaucratic pen stroke. It will create consolidation in the industry, there is a major lack of socio-econconomic data in the ALWTRP. MY CONCLUSION IS THAT WE STAY WITH THE STATUS QUO - ALTERNATIVE 1 - NO ACTION . It allows everyone to operate their businesses as they see fit with maximum safety to men and whales alike

RECEIVED
SEP 11 2013
BY:_____

To: Mary Colligan,
National Marine Fisheries Service

Attn: ALWTRP Large Whale Plan:

Myself, having been involved with various fisheries since the early 1970's, I have never seen a whale entanglement. That doesn't mean that they don't happen, they do, but rarely.

I think if you are pushing for vertical line reductions, trawls would do this, but it would adversely affect the smallest of fishing operations. Going from single lobster traps to trawls eliminates the one man/small boat operations through larger boat competition and safety issues.

If you want to eliminate the independent, hard working individuals, then, by all means go to trawls with "whale safe bouy lines". But if you think going from one to two traps per bouy is feasible, think again.

On the outer cape, storms, boat traffic and strong tides are going to create gear conflict and much gear loss.

I think five traps or more for trawls is a must.

However, inside of 12-14 fathoms, I have rarely seen whales, those being minkes and a finback or two. Never, if ever, in my career have I seen humpbacks or larger whales in those shallower waters in the outer cape area. The lobster trap fisheries has to depend on singles inside 12-15 fathoms because traps must be spread out further to have the right effectiveness and efficiency.

Also, on safety, I have seen, first hand, a small boat (25 ft. or less) roll over trying to haul lobster traps on trawls (four trap trawls) during medium conditions. In very fair weather it would be ok but you can't control the weather.

I, myself, fished singles out of a 21 ft. boat for 15 years, but now fish a 31 footer with my son. I fish 1/3 of my traps in trawls now, so effectively have already reduced my vertical lines by a lot. Also, I think the breakaways reduce entanglements. The sinking groundlines on trawls are expensive but I think the idea has brought good results.

One stipulation to improve the status quo would be mandatory training for disentanglement, as calling coastal studies or whoever and then waiting for maybe hours doesn't make good sense during a rescue situation.

The ship strike being the biggest whale death offender needs to be addressed somehow. Our own U.S. Navy has been known to pick off a few whales with the bulbous bows of their warships not to mention the effects of explosives on creatures under the water.

I respect the environmentalists who take the time to comment but my own *belief* is that many of their opinions are undereducated to what really is happening in the fishing community. No one that I know of is really wanting to have gear conflicts with whales. We are all going out of our way not to have entanglements.

And while we are on the subject of marine mammals, it is overdue to be addressing the over population of seals on the Northeast coast of North America.
I am told that countries that have reduced their seal populations have started to see some of their fish stock beginning to recover. There are usable products that can come from this renewable resource of seals. I want to be on the ground floor of that harvest. (I am not joking about this.)

Yours,

Christian Adams
FV Lunasea II
774-722-0017
greydoorstudio@gmail.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Whale rules

Bruce Fernald <fernaldbruce@gmail.com> Thu, Aug 1, 2013 at 12:07 PM
To: "NMFS.NER.whale@noaa.gov" <NMFS.NER.whale@noaa.gov>

To whom it may concern

I have been a lobster fisherman for 39 years out of LIttle cranberry island,me.ever since the whale rules have come out I Have followed them correctly.The one rule that should be changed is the floating rope.If there are more rules coming at us at least work with us to get it back to the 3
Mile line.This rule has been a disaster since the beginning.there is no proof ,to my knowledge that it has done anything,but be a waste of our time,money,and resources.Not to mention the safety factor.I agree that reducing vertical lines the further offshore is a good thing to do.I fish up to 10 miles off and I might see one whale a year.The further off you go the more whales there are,so please make rules accordingly.

I realize it's hard to get something back once it's gone but it's worth a try.

Bruce Fernald
Box57
Islesford,Me.
04646

Sent from my iPad .

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Trap/Pot

Robert Power <rpowers1952@gmail.com> Thu, Aug 1, 2013 at 2:30 PM
To: NMFS.NER.whale@noaa.gov

What's next? No bouy lines? Grapple for your pots and hope your GPS works accurately? I believe the current laws are sufficient. would love some feedback, thank you, sincerely, Robert Powers.

Kate Swails - NOAA Federal <kate.swails@noaa.gov>

PUBLIC COMMENT ON FEDERAL REGISTER Fw d: TAKING 20 Y EARS TO SAV E WHALES - AGENCY NOTMOVING ON IT

bk1492@aol.com <bk1492@aol.com> Sat, Aug 3, 2013 at 5:00 PM
To: KATE.SWAILS@noaa.gov, KRISTY.LONG@noaa.gov, BARB.ZOODSMA@noaa.gov, INFO@oceana.org, INFO@opsociety.org, INFO@peta.org, INFO@idausa.org, AMERICANVOICES@mail.house.gov
Cc: INFO@wdc.greenpeace.org, INFO@seashepherd.org, INFO@pewtrusts.org, SPEAKERBOEHNER@mail.house.gov, COMMENTS@whitehouse.gov, INFO@lohv.org

Subject: TAKING 20 YEARS TO SAVE WHALES - AGENCY NOTMOVING ON IT

I OPPOSE YOUR DOING SO MANY MEETINGS ALL IN ONE AREA ABOUT THIS SUBJECT. I THINK YOU ARE SEEKING TO HOLD OFF ANY REAL MOVES TO SAVE WHALES FOR 20 YEARS BY HAVING LONG LONG PERIODS ON THIS. I ASK FOR RADICAL IMMEDIATE MOVES ON A TEMPORARY BASIS TO SAVE WHALES. THE TEMPORARY EMERGENCY ORDER SHOUDL BE PUT IN PLACE IMMEDIATELY BECAUSE THIS AGENCY IS SITTING ON THIS ISSUE INSTEAD OF MOVING ON IT. STOP ALL TRAWLING. AND STOP LONG LINE NETS. THE SPENDING ON THIS ISSUE IS RIDICULOUS. THIS COMMENT IS FOR THE PUBLIC RECORD. WE NEED SMALLER CHEAPER GOVT. WE NEED LESS SPENDING BY THIS AGENCY. PLEASE ACKNOWLEDGE RECEIPT. JEAN PUBLIC REGULATIONS GOV IS NOT WORKING. IT DID NOT WORK YESTERDAY. IT IS NOT WORKING TODAY. YOU ARE SENDING THE PUBLIC ON A WILD GOOSE CHAS TO A WEBSITE THAAT IS NOT WORKING.

[Federal Register Volume 78, Number 142 (Wednesday, July 24, 2013)]
[Notices]
[Pages 44536-44538]
From the Federal Register Online via the Government Printing Office
[www.gpo.gov]
[FR Doc No: 2013-17737]

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-BC90

Marine Mammals; Notice of Availability of a Draft Environmental Impact Statement To Amend the Atlantic Large Whale Take Reduction Plan

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of Availability of a Draft Environmental Impact Statement; notice of public hearing meetings; request for comments.

SUMMARY: NMFS proposes to amend the regulations implementing the Atlantic Large Whale Take Reduction Plan (Plan). The proposed rule revises the management measures for reducing the incidental mortality

and serious injury to the North Atlantic right whale (Eubalaena glacialis), humpback whale (Megaptera novaeangliae), and fin whale (Balaenoptera physalus) in commercial trap/pot and gillnet fisheries to meet the goals of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). A Draft Environmental Impact Statement (DEIS) was prepared in accordance with the National Environmental Policy Act (NEPA), to analyze impacts to the environment of the management alternatives under consideration. NMFS will hold 16 public hearings along the East coast in August and September for the purpose of answering questions and receiving public testimony on the DEIS.

DATES: The public hearings will be held in August and September. For

specific dates, times, and locations see SUPPLEMENTARY INFORMATION section. The public comment period is from July 12, 2013, to September 13, 2013.

ADDRESSES: You may submit comments on this document, identified by 130201095-3095-01, by any of the following methods:

[[Page 44537]]

Electronic Submission: Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2013-0095 click the ``Comment Now!'' icon, complete the required fields, and enter or attach your comments.

Mail: Submit written comments to Mary Colligan, Assistant Regional Administrator for Protected Resources, NMFS Northeast Region, 55 Great Republic Dr., Gloucester, MA 01930, Attn: Large Whale Proposed Rule.

Fax: 978-281-9394 Attn: Large Whale Proposed Rule

In-Person: Attend a public hearing. See SUPPLEMENTARY INFORMATION section for locations, dates, and times.

FOR FURTHER INFORMATION CONTACT: Kate Swails, NMFS, Northeast Region, 978-282-8481, Kate.Swails@noaa.gov; Kristy Long, NMFS Office of Protected Resources, 301-427-8440, Kristy.Long@noaa.gov; or Barb Zoodsma, NMFS Southeast Region, 904-321-2806, Barb.Zoodsma@noaa.gov.

SUPPLEMENTARY INFORMATION:

Background

Large whale entanglements resulting in serious injuries and mortalities are still occurring; therefore, NMFS believes modifications to the Plan are needed to meet the goals of the Marine Mammal Protection Act (MMPA). Under the MMPA, NMFS is required to reduce the incidental mortality and serious injury to three strategic large whale stocks--the Western Stock of the North Atlantic right whales (Eubalaena glacialis), the Gulf of Maine stock of humpback whales (Megaptera novaeangliea), and the Western North Atlantic stock of fin whales (Balaenoptera physalus)--incidentally taken in commercial fisheries to below the Potential Biological Removal (PBR) level for each stock.

Atlantic Large Whale Take Reduction Team (Team)

At its 2009 meeting, the Team agreed on a schedule to develop a management approach to reduce the risk of serious injury and mortality due to vertical line. As a result of this schedule NMFS committed to publishing a final rule to address vertical line entanglement by 2014. The approach for the vertical line rule will focus on reducing the risk of vertical line entanglements in high impact areas versus a wide-broad scale management scheme. Using fishing gear survey data and whale sightings per unit effort (SPUE), a model was developed to determine the co-occurrence of fishing gear density and whale density.

The Team's Northeast Subgroup met in November 2010 and the Mid-Atlantic/Southeast Subgroup met in April 2011 to review the model and consider its implications for an overall management strategy to address vertical line entanglements.

The Team agreed NMFS should use the model to consider and develop possible options to address fishery interactions with large whales by reducing the potential for entanglements, minimize adverse effects if entanglements occur, and mitigate the effects of any unavoidable entanglements.

To solicit additional stakeholder involvement, on June 14, 2011, NMFS published a Notice of Intent in the Federal Register (76 FR 34654) to announce the agency's intent to prepare an Environmental Impact Statement that would analyze the impacts of alternatives for amending the Plan. In July and August 2011, NMFS held 15 scoping meetings to solicit feedback on the vertical line risk reduction strategy. The information provided at the scoping meetings was also reviewed at a full Team meeting in January 2012. Team members further refined their vertical line risk reduction proposals and the team met via teleconference in February 2012 to review the final proposals submitted. The Team reviewed five proposals: three from state agencies, one from the scientist/academic community, and one from

one from the scientist/academic community, and one from the conservation community. Results of the proposals were presented via teleconference in April 2012. Each vertical line risk reduction proposal was analyzed to assess its impact on both the number of vertical lines and co-occurrence scores relative to the baseline in the Northeast and coastwide.

NMFS designed the proposed alternatives in the DEIS based on comments received during public scoping and using many of the measures submitted by the team in their stakeholder proposals. The alternatives include measures requiring increased traps per trawl, the use of weaker weak links and/or vertical lines of lower breaking strength, and potential time-area closures.

Several of the background documents for the Plan and the take reduction planning process can be downloaded from the Plan Web site at http://www.nero.noaa.gov/whaletrp/. Copies of the DEIS/Regulatory Impact Review for this action can also be obtained online. NMFS has scheduled public hearings on the DEIS. The purpose of the hearings is to provide the public the opportunity to ask questions and provide comments on the upcoming action.

Hearing Dates, Times, and Locations

The dates, times, and locations of the meetings are scheduled as follows:

1. Monday, August 5, 2013--Machias, ME 6-9 p.m.

University of Maine at Machias (Science Building), 116 O'Brien Avenue,

Machias, ME 04654

2. Tuesday, August 6, 2013--Ellsworth, ME 6-9 p.m.

Ellsworth Public Library, 20 State Street, Ellsworth, Maine 04605

3. Wednesday, August 7, 2013--Rockland, ME 6-9 p.m.

Oceanside East High School (Auditorium), 400 Broadway, Rockland, ME 04841

4. Thursday, August 8, 2013--Portland, ME 6-9 p.m.

Portland City Hall (State of Maine Room), 389 Congress St., Portland, ME 04101

5. Tuesday, August 13, 2013--Chatham, MA 6-9 p.m.

Chatham Community Center (Large Meeting Room), 702 Main St., Chatham, MA 02633

6. Wednesday August 14, 2013--Plymouth, MA 6-9 p.m.

Plymouth Public Library, 132 South St., Plymouth, MA 02360

7. Thursday, August 15, 2013--Narrangansett, RI 6-9 p.m.

URI Campus, Coastal Institute Building (large conference room), 215 South Ferry Road, Narrangansett, RI 02882

8. Monday August 19, 2013--Gloucester, MA 6-9 p.m.

NOAA Northeast Regional Office (Hearing Room A&B), 55 Great Republic Dr., Gloucester, MA 01930

9. Tuesday, August 20, 2013--Portsmouth, NH 5-8 p.m.

Urban Forestry Center 27, Elwyn Road, Portsmouth, NH 03801

10. Monday, August 26, 2013--Wilmington, NC 5:30-7:30 p.m.

New Hanover County Public Library-Main Library (Masonboro Rm), 201 Chestnut St., Wilmington, NC 28401

11. Tuesday, August 27, 2013--Virginia Beach, VA 6-9 p.m.

11. Tuesday, August 27, 2013--Virginia Beach, VA 6-9 p.m.

Meyera E. Obendorf Central Library (Auditorium), 4100 Virginia Beach Blvd., Virginia Beach, VA 23452

[[Page 44538]]

12. Wednesday, August 28, 2013--Manahawkin, NJ 6-9 p.m.

Stafford Township (Court room), 260 E. Bay Ave., Manahawkin, NJ 08050

13. Monday September 9, 2013--Ormond Beach, FL 4:30-6:30 p.m.

Ormond Beach Public Library, 30 S. Beach St., Ormond Beach, FL 32174

14. Tuesday September 10, 2013--Jacksonville, FL 5-7 p.m.

Jacksonville Port Authority (Board Room), 2831 Talleyrand Avenue, Jacksonville, FL 32206

15. Wednesday September 11, 2013--Brunswick, GA 5-7 p.m.

Georgia Department of Natural Resources (Classroom), 1 Conservation Way, Brunswick, GA 31520

16. Thursday September 12, 2013--Charleston, SC 5-7 p.m.

South Carolina Department of Natural Resources, Marine Resources Research Institute (Auditorium), 217 Ft. Johnson Rd., Charleston, SC 29412

Special Accommodations

These meetings are physically accessible to people with disabilities. Request for sign language interpretation or other auxiliary aids should be directed to Kate Swails (978) 282-8481 at least 7 working days prior to the hearing date.

Authority: 16 U.S.C. 1361 et seq.

Dated: July 18, 2013.
Helen M. Golde,
Deputy Director, Office of Protected Resources, National Marine Fisheries Service.
[FR Doc. 2013-17737 Filed 7-23-13; 8:45 am]
BILLING CODE 3510-22-P



Kate Swails - NOAA Federal <kate.swails@noaa.gov>

Atlantic Large Whale Take Reduction Plan

alexis rogers <lxsrgrs18@gmail.com> Tue, Aug 6, 2013 at 7:10 PM
To: Kate.Swails@noaa.gov

I am highly concerned with your changes to the inshore lobster fishery. I do not think it is a good idea to do away with single line lobster traps. I am a 20 plus year lobster fisherman in Greater Blue Hill Bay, I have never seen a whale and have spoken to other fisherman who have also never seen a whale in Blue Hill Bay in that time period. I fish 800 traps, 400 of which are singles. It does not make any sense to push this rule onto fishermen in this area because this area has never had any whales. Fishing in and around all the shallow bays with all the rocks and rugged bottom, fishing pairs would create singificant loss and damage. The areas that I am mostly speaking of are Morgan Bay, Union River Bay, Western Bay, Bartlett's Island, Harwood Island, Tinka's Island, Barr Island, Long Island, (all these areas are parrt of Greatere Blue Hill Bay) .I really do not understand your reasoning in pushing this rule on us when there are not now nor have there ever been whales seen in Blue Hill Bay. Where are the facts in passing this law for this area?

Thank you for taking my e-mail and listening to my comcerns.

Sincerely,

Jeff W. Clark

Date: August 8, 2013

To: National Marine Fisheries Service

From: Robert Sloane

Subject: Comments: Proposed Rule Atlantic Large Whale Take Reduction Plan Regulations

As a lobsterman operating from April – October in LMA 2 (Martha's Vineyard), I want to offer my comments concerning the Proposed Rule; Atlantic Large Whale Take Reduction Plan Regulations. My understanding of the proposal is as follows:

Present regulations allow the deployment of single traps in State waters as well as 3 – 12 miles (Federal Waters).

The proposed regulations would result in 3 trap per buoy trawls in State waters and 10 trap minimum trawls in 3 – 12 mile (Federal Waters).

1. Presently LMA 2 lobstermen are awaiting final approval by NMFS re: Trap reduction plan. The result of this plan will mean either fishing less traps or having to purchase additional licenses to maintain fishing at current level. I see no mention of how this impacts the Whale Take in LMA 2 nor is it noted that lobstermen can be faced with the cost of re-rigging to meet the whale take plan simultaneously with cost of the trap reduction plan.

2. When viewing the Whale Take Reduction Plan overall, it appears that concessions were made to minimize the hardship in meeting the plan's goal. For example: Downeast Maine lobstermen were allowed to carry on fishing doubles instead of being forced to re-rig with trawls. Instead in LMA 2, the proposed regulations reflect the most severe measures, for example: three traps per buoy in State waters vs. doubles being allowed. It appears that LMA 2 lobstermen are disproportionately being affected by the proposal. There is probably 30 -50% fewer vertical lines in LMA 2 today than 10 – 15 years ago due to the lobster stock collapse.

3. LMA 2 lobstermen who have survived the recent dramatic downturn in lobster abundance are largely operating marginal businesses. To achieve a profit, I have operated single-handed, reduced boat size, and operated at most economical speeds. To optimize the yield per trap, I fish with single traps in both State and 3 – 12 mile Federal Waters. Over the past 30 years, I tried doubles and 10 trap trawls. The simple fact is a single trap will result in the highest yield per trap. It also offers a method of lobstering that minimizes the threat of " human entanglement" in the line. From a common sense view, having a whale entangle in a 5/16" buoy line with a 40 lb. trap seems less serious than an entanglement with a 10 trap trawl.

4. Realistically I could foresee re-rigging from singles to doubles in both State Waters and 3 – 12 mile Federal Waters, economically I could continue lobstering in LMA 2. Unfortunately, if a 10 trap trawl minimum is required, I can state with assurance, that I will be one of those projected by the proposal as having to leave the fishery due to the economic burden and safety concerns of the Whale Take Reduction Plan Regulations.

5. The Whale Take Reduction Plan is not based on science or actual data. It is based on the simplistic idea that removing vertical lines in the ocean will minimize whale entanglements. No one knows now where the entanglements originate from or any specifics. Based on the few sightings of whales near my gear over 30 years, removing my vertical lines will probably have no effect on the number of entanglements. If the whale population increases probably entanglements will increase, what then? This Plan as presented does have one definite effect, I am regulated out of lobstering for the sake of claiming that "something" whether effective or not is being proposed.

PUBLIC SUBMISSION

As of: August 12, 2013
Received: August 09, 2013
Status: Pending_Post
Tracking No. 1jx-86xw-ynqi
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0006
Comment from Lucky Beckett

Submitter Information

Name: Lucky Beckett
Address: United States,

General Comment

I have had the privileged to meet scientists like Mads Peter Heide-Jorgensen a senior Danish researcher on the topic of North Atlantic whales. These creatures have to fight for survival as they rival the massive ships that share the ocean and are exposed to horrific sonar and underwater explosions by oil companies and pollution and human harvesting. The rudders of ships tear at them and they inadvertently consume human garbage and toxins.

I believe I speak for many people in this country and abroad who would also make their opinion known if they knew the process. Count my request for greater conservation of the whales as not one voice but thousands.

Many years ago Greenpeace came to my Ohio hometown in an effort to mediate with a large purveyor of North Atlantic whitefish from Iceland, a country which was in violation of the moratorium on whaling, citing "scientific use" which turned out to be false. They showed me volumes of data which was astounding concerning the whale and other species. The decline in size and volume. People here in Ohio came out in droves to protest. I personally learned for example how important whale feces is as a nutrient for micro-species that feed fish. They serve as a keystone species in that aspect.

Nature has been used and abused by humans. The oceans and their inhabitants need your help. Please place the most stringent sanctions in place.

National Marine Fisheries Service
Southeast Regional Office, F/SER32
263 13th Avenue South
St. Petersburg, FL 33701

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SAVE MONEY, NOT WHALES.
CLOSE DOWN NATIONAL MARINE FISHERIES
THIS WILL CREATE JOBS. DISBAND THE
COMMERCE DEPT., DEPT OF EDUCATION,
AND MANY OTHER FEDERAL AGENCIES
DESIGNED TO DESTROY THE U.S. ECONOMY
BY OVER REGULATION AND INEQUITABLE
RULES THAT ARE ARBITRARY AND CAP-
RICIOUS. GO HOME or GO HELP OUT ON
OUR SOUTHERN BORDERS.

Robert Metz

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Comments on Measures to Reduce Takes of NARWs from Fixed Fishing Gear

David Dow <ddow420@comcast.net> Mon, Aug 12, 2013 at 8:44 AM
To: NMFS.NER.whale@noaa.gov
Cc: David Dow <ddow420@comcast.net>

Since I will be unable to attend tomorrow night's meeting in Chatham, Ma. on the NOAA Docket #: NOAA-NMFS-2013-0095, I wanted to submit some thoughts on the importance of the shifting baseline in the ocean and its consequences on the protection of North Atlantic Right Whales (NARWs) by NOAA Fisheries. The agency needs to do all that it can to reduce the incidental takes of NARWs from fixed fishing gear and ship strikes, but I feel that the shifting baseline in the marine food chain from a combination of climate change and eutrophication will require alterations in the NARW critical habitat and the restricted/seasonal closure areas in which the fixed fishing gear proposals are to take place in order to reduce adverse effects on NARWs.

As a resident of Cape Cod and retired biological oceanographer, I don't know how the large zooplankton prey of NARWs will change in time and place as we move into the future in Southern New England, Georges Bank and the Gulf of Maine, but it is bound to influence the whales feeding aggregations and potential interactions with fixed fishing gear. As the Spring diatom bloom changes in location and intensity, the large zooplankton that support forage fish and NARWs will have to respond to their changing food sources. This grazing food chain will be replaced for longer periods of time by the microbial food web (which dominates when the water column is stratified from Spring through the Fall) which reduces the food available to NARWs and forage fish (since it increases the length of the marine food chain and increases the respiratory loss of the phytoplankton particulate and dissolved production at the base of the food chain). If the ocean food chain transfer efficiency is altered as we move into the future, it could have profound implications for the resources that NOAA Fisheries manages

The Northeast Fisheries Science Center's Ecosystems Status Group has already observed some of these changes in the zooplankton community. One consequence is that they were asked by the New England Fishery Management Council (NEFMC) to develop an ecosystem approach for fisheries pilot project by 2015. Both the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA) conservation measures assume that an ecosystems-based management perspective will be utilized. It is not apparent to me that this is being done for NARWs, so that the current fixed gear regulations should consider this changing context in which the NARWs exist. The Living Marine and Protected Resource scientists/managers within NOAA Fisheries don't appear to be working on integrated, ecosystem-basedf approaches for the protection and conservation of LMRs and PRs.

The NEFSC hydro-acoustic surveys for forage fish and ecosystem surveys that utilize towed plankton recoding devices could provide data that could be useful in addressing this shifting baseline phenomenon in the marine food chain. NOAA might want to consider using some forage fishing vessels as research platforms, since they sample where forage fish are abundant (providing different types of data than the NEFSC transect surveys on forage fish and zooplankton distribution). Over the longer term, the NEFSC should convert the Bottom Trawl Surveys for groundfish into ecosystems-based surveys and improve ways to convert this data into information useful for management (data rich, but information challenge). This would require an adaptive, ecosystem-based management philosophy for NARWs which would appear to be a paradigm shift from the current focus on reducing NARW incidental takes from ship strikes and fixed fishing gear. Hopefully NOAA's NERO could explore this concept with the Atlantic Large Whale Take Reduction Team and interested members of the public.

Biological oceanographers have known about the two components of the marine food chain: grazing food chain and microbial food web, since the late 1960's when Dr.Lawrence Pomeroy wrote a paper pointing out the importance of the microbial food web in the ocean food chain. Most of the biological oceanographic research on this topic has explored the interaction between climate change and the carbon cycling in the plankton. The NEFSC EMaX modeling project pointed out the consequences of these two components of the planktonic food

web to the linkage between forage fish and LMRs, PRs and Natural Trust Resources (NTRs). Unfortunately it takes time to convert scientific understanding into practical management applications.

The recent warm Winters appear to have diminished the Spring diatom bloom as zooplankton predation has continued to feed on phytoplankton in the bottom waters, while warmer Summers have increased the intensity of the water column stratification which favors the microbial food web. Climate change has also altered the cycling of nitrogen and phosphorus between the sediments and water column in coastal waters, with nutrient enrichment from human activities in coastal watersheds (eutrophication) exacerbating this problem. This is a complex scientific problem that will require a variety of management solutions and perhaps some pilot test projects to see what works.

Since NOAA Fisheries doesn't have any regulatory authority over climate change and eutrophication, it will have to adapt its management approaches to account for these non-traditional human stressors that appear to be the cause of the shifting baseline in the marine environment. In my view this will require more dynamic management approaches to protect NARWs in which scientific data from a variety of sources will be converted into information useful to managers and constituents. NOAA might still utilize restricted areas and seasonal closures for fixed fishing gear as management tools, but their application may have to be more dynamic based on the response of NARWs to their shifting environment and changes in the marine food web. My analogy would be the adage that one can't see the forest because of the different tree species. It takes an intact forest to preserve the plant and animal species that live in the forest and are subject to a variety of human stressors that effect the species if different ways. We need an adaptive, ecosystem-based management framework to achieve the MMPA and ESA goals for NARW recovery. The status quo approaches need to be supplemented with more dynamic solutions.

Thanks for considering these comments.

Dr. David D. Dow
18 Treetop Lane
East Falmouth, Ma. 2536-4814
508-540-7142; ddow420@comcast.net



NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Comments DEIS

Kurt Martin <timebandit100@hotmail.com> Sun, Aug 18, 2013 at 1:35 PM
To: "NMFS.NER.whale@noaa.gov" <nmfs.ner.whale@noaa.gov>

To Whom It May Concern:
I'd like to express my comments on the DEIS and Proposed Rule. I am in support of status quo, Option 1. As a commercial fishermen, I have reduced the vertical lines in the water since I started fishing- through going to trawls and decrease of traps in the water.
There is a reason why the fishermen fish singles in certain areas. Going to pairs and small trawls for fishermen with small boats is going to increase being set over and gear conflicts. The ocean is going to end up with more ghost gear in the water.
More and more people are voluntarily switching to trawls because they are changing their fishing practices, but those who choose to stay with singles should be able.

There is a 10% trap reduction every time a transfer is made, that reduces vertical lines.
There is already a 2 month winter closure, and there are only a handful of people who fish late into the season. We very rarely see whales that time of year. Other gears that use vertical lines can be fished during the proposed closure time, why prohibit lobsterman?

Over the past couple years there have been dead whales floating with no gear on them. There have been pair trawlers fishing in a regular basis in this area. NMFS should have followed with the Councils rule and not allowed dumping of trawl nets and placed observers on all of the trips. They fish where the bait is, that is where the whales are.
Kurt Martin

It's unfortunate the federal government types a 900 page document and expects us to comment on every portion of it.

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

(no subje ct)

Jay Vanderpool <vanderpool_jay@yahoo.com> Mon, Aug 19, 2013 at 7:55 PM
To: "nmfs.ner.whale@noaa.gov" <nmfs.ner.whale@noaa.gov>

I am a lobsterman from rockport. Im in favor of alternative 1. Any other alternative is unacceptable and will NOT be followed. Furthermore i am sick and tired of nmfs taking and taking from what fisherman are left. You people are done taking from me. good day sir.

Sent from my iPhone

PUBLIC SUBMISSION

As of: August 26, 2013
Received: August 23, 2013
Status: Pending_Post
Tracking No. 1jx-8779-l3mt
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0007
Comment from Nina Monasevitch

Submitter Information

Name: Nina Monasevitch
Address: United States,

General Comment

I agree Alternative 5 is preferable, HOWEVER:

The waters off New Hampshire and Maine should NOT be exempted.
Additional gear marking strategies must be included to differentiate gear types and regions.
Gillnets should not be exempted from entanglement reduction strategies.
A seasonal closure for black sea bass traps in the Southeast Restricted Area must be implemented to protect newborn critically endangered right whales.

PUBLIC SUBMISSION

As of: August 26, 2013
Received: August 24, 2013
Status: Pending_Post
Tracking No. 1jx-877y-gcpt
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0008
Comment from Marcia Salmond

Submitter Information

Name: Marcia Salmond
Address: United States,

General Comment

It is my firm and unshakable belief that all human life is dependant on a healthy functioning environment.The environment of the sea forms the greater part of this planet and by every measure has neen damaged severly by human behaviour in the last 200 years.I think it is important to realize that most of our clever little abilities have only recently come into being:do we have the right to endanger future generations by failing to act with restraint and prudence at this critical time.
I think we do not and I would urge you in the strongest possible terms to come to the defense of the Oceans and in this instance the whales.I believe they are vital to a balanced eco system and that we must work urgently to restore this balance.
For the first time in modern history there is now a glimmer of hope that this is possible.Recent scientific developments have lead to cheap and simple ways to desalinate ballast water which would make the removal of micro and some macro stoways profitable for ships,as they could produce a second cargo of water for sale at landfall,instead of dumping and contaminating the port cities at which they dock.This is good news,fabulous news really it provides for the possibilty of reintroducing native species.
There are further break throughs of great promise with magnatized nano prticles that may be able to be developed for use in the Oceans currently they are being applied to drinking water which will facillitate the roll out for Ocean use by establishing the facilities for manufacture and the global distribution of these facilities.All.of which will aid greatly in improving the water quality in various localities which again will aid in the recovery of so many species that have declined due to pollution.So we are close to seeing tremendous gains made in once again having healthier seas.

It is vital to us all that people such as yourselves remain staunch in their defense of the seas.This is not a partisan issue nor is it an issue of today it is an issue of forever.There amoungst us people of limited awareness and tremendous greed who seek to promte the exploitation of the seas and their right to profit above the rights of all of mankind and every other living thing in the Ocean.This is unbalanced it is sad travesty of civiization that we must even consider these immature demands. Wright whales have endured everything we have done to them and we are so close to losing them forever,I implore you not to let that happen let us use all of our intelligence to aid them.Let us use all of our science to save them.Let us find in our hearts and minds in our very souls the will to do what we owe the future and let us be content with the thanks of those still not born to praise what we have done for them and for their children.

I thank you for your consideration of my opinion.

PUBLIC SUBMISSION

As of: August 26, 2013
Received: August 24, 2013
Status: Pending_Post
Tracking No. 1jx-8781-3ul6
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0010
Comment from Helen Bobat

Submitter Information

Name: Helen Bobat
Address:
204 Saddlesmith Circle
Kanata, Ontario, Canada, K2M 2Y6
Email: helenabobat@gmail.com
Phone: 6135913564

General Comment

Please help reduce the entanglements of right and humpback whales. We desperately need to protect large whales in the oceans and seas. I am an avid cetacean lover and watcher and spend large amounts of tourist dollars in my endeavours to see whales and other marine mammals in their natural habitats, where they belong. I am also a financial and vocal supporter of Whales and Dolphins Conservation. The National Oceanic and Atmospheric Administration (NOAA) is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys. Reducing vertical lines in the water will reduce entanglements of whales and this is important to the species which are already at risk. In the NOAA proposals, I prefer Alternative 5. In the NOAA proposals, I do not want Maine or New Hampshire waters exempted. In the NOAA proposals, gillnets should be added and included. According to research conducted by NOAA, serious injuries and mortalities to right whales have been recorded at nearly double the sustainability rates. According to research conducted by NOAA, serious injuries and mortalities to humpback whales have been recorded more than double the sustainability rates. According to NOAA research only protecting the right and humpback whales will save their species. It is time for the government and NOAA to do something to help these species and to stop their untimely and unnecessary demise.

PUBLIC SUBMISSION

As of: August 26, 2013
Received: August 24, 2013
Status: Pending_Post
Tracking No. 1jx-8783-gjq9
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0011
Comment from Ivonne Teoh

Submitter Information

Name: Ivonne Teoh

General Comment

Dear NOAA,

Please lower the VERTICAL LINES to prevent hurting marine animals like whales, dolphins, etc.

They are getting tangled up in the lines, which cause pain and suffering!

I have seen photos of a fin whale, etc being caught up in the lines, and they die in pain, unable to move, trapped.

Please help!

Thanks,
Ivonne Teoh
Sydney Australia

PUBLIC SUBMISSION

As of: August 26, 2013
Received: August 25, 2013
Status: Pending_Post
Tracking No. 1jx-878i-jspz
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0012
Comment from Wim Breeman

Submitter Information

Name: Wim Breeman
Address:
Singel 9
Rhoon, 3161 BJ
Email: wim124@hotmail.com
Phone: +31653288635

General Comment

Please reconsider the vertical lines! Besides we have to protect these animals, Whale watching is a big industry and is getting more and more important as a income. Show your commitment as a good example from developed countries to less developed countries and ban the vertical lines and do not promote the fishing industry

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

whale take reduction

Kurt Schmidt <kurtschmidt1@gmail.com> Fri, Aug 23, 2013 at 5:21 PM
To: NMFS.NER.whale@noaa.gov

Hello, I am 73 years of age and have been fishing the outer cape for 40 years.
I have been able to support my family (wife and 2 daughters) with lobstering plus part time work in the off months.
The facts of the dangers of trawl fishing have been documented for many years causing many deaths from drowning along with cold water. Most areas are unlike the outer cape where the water moves at speeds up to 6 knots, pulling the bouys under for much of there fishing time. In that enviroment , the dangers of getting caught in trawl lines on small boats is much higher than in other areas. and cold water in the early and late season adds to the possibility of drowning.
All the backside lobstermen have been able to work (with single lines and bouys) a good working program with each other in a thin fishing area with success for many years.
If we are forced to trawl fish, with traps that can not be seen. there will be one on top of another,and then the cutting begins. After all these years of working together. the end result will be hate and rope lines and traps all over the bottom. I am shocked you do not see the obvious.
Thank you for your attention to this matter.

Kurt Schmidt
permit 003517



NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

DEIS Large Whale Take Reduction Plan

phil Mason <keeperlobster@verizon.net> Mon, Aug 26, 2013 at 12:12 PM
To: NMFS.NER.whale@noaa.gov

To: Mary Colligan

Assistant Regional Administrator for Protected Resources

National Marine Fisheries Service

Attn: ALWTRP Large Whale Rule

From: Philip Mason

Captain F/V POT LUCK

Federal Permit # 262659 (my first # was 100002)

State Permit # 017283

From: Peter Mason

Captain F/V Kestrel

Federal Permit # 221967

State Permit # 002543

Subject: DEIS / Large Whale Take Reduction Plan

We both agree to Alternative #1

We both lobster 12 months a year.

We both lobster in Cape Cod Bay

REASONS FOR ALTERNATIVE # 1 TO REMAIN IN EFFECT:

Our Individual average income for the last 10 years from November thru April is between $ 50,000 and $60,000.

We include November and December because to be out of the water by January one must start bringing in gear during those months.

The Right Whale population has in fact increased from below 300 to over 500. What is the number when they are taken off of the endangered list? No one could or would answer that question. The current plan is working; just let it work.

The Presenters at the Plymouth hearing could not give any details as to where or when any whales became entangled. They had no details on ship strikes and appeared vague when questioned about the Stellwagen research vessel striking a Right Whale.

Their presentation appeared to single out lobstermen rather than all causes of whale entanglements.

The Presenters knew nothing of current studies except their own. To wit: The Maine Lobster Community Alliance , along with the New England Aquarium and the Gulf of Maine Research Institute are studying potential gear modifications for vertical lines. “The project follows on an aquarium study that found whales best discern the color red.” Quoted from The Working Waterfront 7/10/13. The state representatives at the meeting knew of the study.

Closing any area thinking the lobstermen will move out and over to another area, shows how little the bureaucrats know about the territorial areas. If we did move there would be a wall of traps around the closed area. However there are people in all harbors who will cut lose any intruder. So is it wiser to bring your traps home and lose income than move ALL your traps? (ours now sell for $70 / trap 800 x70= $56000.) Worst case you lose the income and traps or both. Either way we are down at least $ 50K-$60k or worst $100000K.

Safety for the lobsterman is also a concern. Winter weather prevents one from going to work as one pleases. When pushed for deadlines lobstermen will take a risk on the days when they should be shore side. I (Phil) can speak personally on this issue. I capsized on 2 /9/1980. My partner was lost at sea. The doctors told me I should be dead. I spent approximately 1 hour in and out of 28 degree water. We went on a day we should have stayed home, instead we chased a dollar. The same chasing will be true with closures. Lobstermen will keep their traps fishing until the last possible moment, then risk life and limb to meet the closure date.

In summary we oppose any closure; history shows closures only grow with time. The Right Whale is on the way back. Take no action and let the current rules continue.

Captain Phil Mason

keeperlobster@verizon.net

Captain Peter Mason

pmkesterl@gmail.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale propose d rule

larrypennington@hotmail.com <larrypennington@hotmail.com> Wed, Aug 21, 2013 at 6:14 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

As a supporter of the International Fund for Animal Welfare (IFAW), and a concerned member of the public, I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

Ive erased a large portion of the IFAW email as composed, in order to simply state the following:

I do try to encourage National Park Services to secure abandoned mines.
I also work with farm families to find and cover abandoned wells on old farms.

But the care of the oceans are too big a concern for me to handle. I must depend on rules like these to address needs at the point of need.

I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5 with the additional points for strengthening this proposal as described above.

Sincerely,

larry pennington
729 plainfield rd
knoxville TN 37923
US
larrypennington@hotmail.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale proposed rule

janepelt@gmail.com <janepelt@gmail.com> Wed, Aug 21, 2013 at 6:35 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

I am writing to comment on the proposed amendment of the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

I support the measures laid out in NOAA's preferred alternative, Alternative 5, and ask that the agency include these measures in the final rule making process.

In addition, please include seasonal closures for Jordan Basin, Jeffrey's Ledge and Cape Cod Bay/Outer Cape, to reduce fishing effort in these key areas with high concentrations of right whales.

Maine state waters include about half of all recorded vertical lines in the Northeast region. This high number of lines, even in waters infrequently traversed by whales, represents a significant risk that should be addressed in the final rule.

More information is needed about what type of gear is entangling these whales and where they are being entangled, so NOAA should require gear marking for trap/pot and gill net fisheries, particularly in the Northeast.

Another thing: many of the proposed "restrictions" in the Southeast and Mid-Atlantic retain the status quo, and the risks for right whale mother and calf pairs and humpback whales are not adequately addressed. Different regulations across critical habitat, state waters and federal waters will make it more difficult for fishermen to adjust their gear accordingly, and will thus hinder enforcement.

While planning for enforcement of new regulations, NOAA must increase its enforcement of existing regulations and ensure continued funding for large whale research and disentanglement. Boat and aerial surveys funded by private and federal research grants allow scientists to track changes in the whale populations, monitor their status and inform our understanding of the impact and effectiveness of these regulations. Without these surveys, and support of large whale disentanglement teams, many more injured whales will go unaided. With the North Atlantic right whale just beginning to show signs of slow recovery, now is not the time to back down on these efforts.

Sincerely,

Jane Pelton
15654 Rattlesnake Rd
Grass Valley 95945
US
janepelt@gmail.com

PUBLIC SUBMISSION

As of: August 28, 2013
Received: August 27, 2013
Status: Pending_Post
Tracking No. 1jx-879o-axho
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0013
Comment from Sal Henderson

Submitter Information

Name: Sal Henderson
Address: United States,

General Comment

I am an avid whale watcher and lifelong cetacean campaigner. I am delighted you are identifying ways to help protect the larger whales and support Alternative 5. However, this needs to be strengthened with the inclusion of:

-maine and New Hampshire waters
-gill nets

Please also consider all possible avenues to prevent cetaceans becoming entangled in vertical line fishing gear.

By taking these actions you will help protect the critically endangered right whale whose mortality/injury rate, as your own research shows, is twice the sustainable limit.

Industrial scale fishing is decimating the oceans and having a devastating effect on marine species. I urge you to do all you can now to protect these awe inspiring animals.

PUBLIC SUBMISSION

As of: August 28, 2013
Received: August 27, 2013
Status: Pending_Post
Tracking No. 1jx-879v-u1cz
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0014
Comment from Fiona Stuart

Submitter Information

Name: Fiona Stuart
Address:
6111 Estate Nazareth
St Thomas, VI, 00802

General Comment

I'm writing because I believe we have a responsibility to the other creatures with whom we share this planet and an obligation to protect them from harm caused by our own species whether it be intentional or accidental.

I urge you to restrict vertical lines and gillnets that are harming humpback whales. Such restrictions should not exclude any other States such as Maine or New Hampshire. Your own research has shown that the number of serious injuries and fatalities exceed the number that will allow sustainability of the species.

Please help protect the humpback whales in our waters to ensure the survival of their species.

Thank you.

Fiona Stuart

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large Whale Propose d Rule

demonraeca@gmail.com <demonraeca@gmail.com> Tue, Aug 27, 2013 at 1:32 AM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

I'm writing to comment on the proposed rules for the Atlantic Large Whale Take Reduction Plan which is meant to reduce the risk of entanglement in vertical lines. The measures in Alternative 5 are a good starting point, starting with seasonal closures in Jordan Basin, Jeffery's Ledge and Cape Cod. Unfortunately New Hampshire and Maine waters are not included which is troubling as these account for almost half of all vertical lines in the Northeast. The Southeast meanwhile is a mis-mash of regulations for state waters, federal waters, etc that will make for difficulties in monitoring and enforcement, and a nightmare for fishermen to adjust to. Lastly, it would be good to see more funding found (never an easy thing) for monitoring and enforcement of these rules.

Thank you for your time.

Sincerely,

Jason Lanum
1800 El Cerrito Place
Los Angeles CA 90027
US
demonraeca@gmail.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale propose d rule

gerrit.crouse@gmail.com <gerrit.crouse@gmail.com> Sat, Aug 24, 2013 at 10:50 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

Re: proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce risk of entanglement in vertical lines.

Human-induced serious injury & mortality due to incidental entanglement in fishing gear now exceeds the recommended Potential Biological Removal level defined for whales. As an emeritus member of the American Institute of Biological Sciences (AIBS), I ask you to include NOAA's preferred Alternative #5 in the final rule making process.

Include seasonal closures for Jordan Basin, Jeffrey's Ledge, & Cape Cod Bay/Outer Cape to reduce fishing effort in areas with high concentrations of right whales.
Exemptions for Maine & New Hampshire state waters are of major concern, particularly as Maine state waters include half of all vertical lines in the Northeast region.

Good information about what type of gear is entangling whales & where is required. NOAA needs to include additional gear marking for trap/pot & gillnet fisheries, particularly in the Northeast to allow scientists to make these determinations.

There is now a patchwork of regulations set up for the Southeast region. Different regulations across whale habitat in state waters & federal waters will make it harder for fishermen to adjust their gear accordingly, & make enforcement more difficult. Retaining the status quo in the southeast & midAtlantic for nearly extinct right whale mother & calf pairs & humpback whales is not an adequare response.

NOAA needs to increase funding for monitoring & enforcement to improve compliance with existing & new regulations. Boat & aerial surveys funded by private & federal research grants allow scientists to track changes in whale populations to determine understanding of the impact & effectiveness of these regulations. Large whale disentanglement teams need to be supported.

The proposed rule is intended to address the threat of vertical lines of trap & pot fisheries, but impact from gillnet fisheries & offshore wind farms needs to be accounted for before final rule making is completed.

Sincerely,

Gerrit Crouse
38 4th Avenue
Apt 2-N
Nyack NY 10960

US
gerrit.crouse@gmail.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Please Help Protect Whales from Entanglement

fultura@yahoo.com <fultura@yahoo.com> Wed, Aug 21, 2013 at 3:08 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

Please make the visionary decision to protect whales from injury and death due to entanglement in fishing gear.

People all over the U.S. are hoping that you support the new proposed rule to reduce the impact from vertical lines running from surface buoys down to traps and pots at the ocean bottom is the next step to reduce this risk.

Thank you for your consideration.

Sincerely,

Cynthia Tracy
25 Algonquin Road
Canton MA 02021
US
fultura@yahoo.com

8/22/13

01

Mary Colligan

In Regard to proposed Closures

Jeffreys Ledge + Jordan Basin

My name is Jason Polisson FV ~~Rhumbo~~ Rhumboogie 143860 I have Fished these Areas over the Last 30-40 Years Shrimp Dragging During these Times We have Not seen 10 whales in Total I dont know why you think there is A Problem You made us Give up Floating Rope this Costs me At Least 50 pots per year when Cut or droped or Towed off by dragers it is impossible to grapple them up deeper than 10 fathoms You made us use week Links wich Also Costes me 50-60 bouys more each season when will it be enough Closing these Areas At Prime Lobster season is Extreemly hurtfull to my income And Serves Really No Purpos We Are there Every Fishible days And dont See Any more than 4 or 5 each ~~Sea~~ Winter Season

Please dont hunt us any more
we have ben driven out of fish
dragging At Least 40% of my income
if we loose this winter fishing our prime
time, it will be devastating

Thanks For Your Time

Jason Polesser
FV Rhombogle
143860

Nathaniel "Laddie" Dexter
201 Arlington St.
Marshfield, MA 02050
(781) 834-6426
(617) 930 0264 cell

RECEIVED
AUG 2 2 2013
BY:_____

August 15, 2013

U.S. Department of Commerce, NOAA, NMES,

I am writing to comment on the public hearing held by you on Wednesday August 14, 2013 at the Plymouth, MA Town Library. I will admit I was late for the initial opening of the hearing due to a massive one plus hour traffic jam. I do in fact have the written hand out and commenting on the proposals for area one.

First I would mention that I have over fifty years experience fishing in area one. Also to indicate my involvement in the good and long term conservation of the lobster fishery I was awarded the 1994 Ambassador Award, awarded jointly between "the Republic of the United States and Canada." I am also past president of the Massachusetts Lobstermen's Association having served as such for 16 years until my retirement.

A quick couple of comments prior to my actual comments on proposed alternatives; on the first page of the hand out under "purpose" it states that the number of mortalities is increasing and must be reduced. If you have more whales out there, the number of whales has increased substantially in recent years, it stands to reason that statistically there will be more interaction with them i.e. look at the number of dead deer along the road side compared to a number of years ago, more of anything increases the interaction. You greatly overlook the major cause of mortalities which is in fact ship strikes. If you were just swimming along on the ocean surface and a ship traveling along at normal speed ran into and gave you a smack in the head you will probably roll around for a while without any idea what you were doing. That is where the entanglement comes into being. As an example of this scenario I site the days of hand line fishing for tuna on Stellwagon Bank. At that time there multi hundreds of boats with six to ten hand lines, made of pot wrap, off of each of these boats which were so close to each other you could talk to each other. During this time all kinds of whales would swim right through the middle of this fleet. I never once heard of any entanglements as a result of this interaction. This also holds

true as many days in the past as I was hauling traps whales would spend time around the boat in a curious manner, again no entanglements and the whales would get bored after a while and swim away.

This past spring as you know there was a large number of whales on the west side of Cape Cod Bay. You could see them as you were standing on the town pier. There were no entanglements, why you ask, none of them were conked on the head by a ship and they could navigate properly as they have for centuries. I know is it tough to go after big business, shipping, but until you get that straightened out your problem will never go away and with the increase in whales the number of mortalities will most likely continue to increase.

ALTERNATIVE 1

This system has been agreed upon by the fishermen and regulators. It still allows fishermen to work, although there is a substantial cost to the fishermen, and allows relative protection to the whales.

ALTERNATIVE 2

I have long been an advocate for trawls which greatly reduce the number of ghost traps. I personally fish tens in shoal water and the two together for 120 plus feet of water. This is quite common in Cape Cod Bay.

ALTERNATIVE 3

The trawl length is covered in Alternative 2. A major problem exists in the closure dates. Usually there is a good run of lobsters through the end of December. In order to take 800 traps ashore at that time of year it would take upwards of one month. That would substantially affect a person's income. I ask can you afford an income reduction in today's economy. Add the fact although possible, whale sightings by me in January are so rare that I can't remember the last time I saw one in January.

ALTERNATIVE 4

Covered in alternative 3.

ALTERNATIVE 5

Covered in alternatives 3 & 4.

ALETRNATIVE 6

Appears to be more of the previous alternatives, 2, 3, 4, and 5 and is basically redundant.

As I am sitting in my kitchen watching the news, one of the lead stories is about a young girl being attacked by a black bear, the girl survived. The news reporter interviewed an environmental police officer. His comment was as the bear population increases interaction will be more common. I believe this only reiterates the major point of my letter. So what does this mean? People can no longer walk in the woods or use the ocean? We can and must do better than this.

In closing I would be more than happy to talk, either by phone or in person, to any of the agencies involved in this matter. No one will be completely happy with the outcome but possibly an experienced voice of reason could clear up some of the issues.

Respectfully submitted,

Nathaniel "Laddie" Dexter

W. William Anderson
702 Dixie Road
So. Trescott, Maine 04652
Phone (207)733-2179
Fax (207) 733-2179

RECEIVED
AUG 2 9 2013
BY:

August 26, 2013

Mary Colligan, Assistant Regional Administrator For Protected Resources
National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 01930

Dear Ms. Colligan:

I attended your public hearing in Machias on August 5, 2013. After attending that meeting I want to provide this further comments on your Amendment to the Atlantic Large Whale Reduction Plan.

While I am not opposed to additional gear marking on buoy lines if this will help identify a problem. I would like to know that this additional work will actually help identify a problem. If my buoy line with additional markings, is cut off by another fisherman. Then a whale becomes entangled in it. Does this help identify the problem?

You are considering having a different color mark for the Maine and New Hampshire exempted areas. This would be a real problem for a fisherman like myself that is fishing around the line. Where I live and fish this exempted area is a very thin strip very close to shore. One week I might be inside the exemption line and the next week I might be outside or be fishing on this line. One end of the trawl inside and the other end outside. I had been just marking all my buoy lines no mater where I fish them so I would be in compliance no mater where I fished. Having to have one marking for gear inside the line and a different mark outside the line would be difficult to stay in compliance with. There is no line on my chart plotter telling me exactly where this line is and I am not exactly sure when I am in exempted waters and when I am not. I would find it very difficult to know when I was in compliance and when I was not. Then I would have to be constantly checking my buoy lines to see if I had the right color markings for where I was going to set this gear now.

You are proposing several closed areas. While I made no comment on this at the public hearing because I do not fish anywhere near these closed areas. I have been thinking about what you and others said about closed areas I question the value of these closed areas for the following reasons.

1. You said in some of these areas there is already little fishing in these areas at the time of the closures. These fisherman are already complying with all whale rules and if effort is at a low level then the chance of entanglement is already at a

very low level. So I can see almost no reason to justify closing these areas as long as the fishermen fishing there are in compliance with all rules to reduce the risk of entanglement.

2. Closing these areas will displace the few fishermen who do fish there and force them to go to other areas which may already be crowded and difficult to find room to set your gear in. While the National Marine Fisheries Service has been talking about the need to reduce the risk of entanglement MNFS allowed the number of federal lobster permits to double in Lobster Management Area 1. This has made this area very crowded and now you want to further limit where all these fishermen can fish. I really question National Marine Fisheries Service's Leadership here and I could say a lot more but I will not at this time.

3. An area like the Cape Cod Bay Critical Habitat area is a near shore area and this is fished with small boats many of them not capable of moving to another area to fish such as a large 80 foot offshore vessel would be capable of doing. If there are a few fishermen who do fish in Cape Cod Bay and they are in compliance with all your whale rules for this area. It is my opinion that they should be allowed to fish. Unless you can show that there is an entanglement problem in this area at this time that can not be resolved by rules to reduce the risk of entanglement.

4. I am opposed to any closed areas unless you can show that there are so many entanglements in an area at a time of year that all gear should be removed.

5. Maybe you should do a better job of managing fishing effort and spend less time trying to write rules about how a fisherman can fish. When I started in this business the number of fishermen and traps were low and the per pot averages were very good at times and expenses were low. Today the ocean is polluted with traps, expenses are very high and per pot averages are poor much of the time. While the per pound prices paid to fishermen are at very low levels. Shell disease is spreading and the rules we have to comply with keep increasing. This all takes more time and effort to stay in compliance with all these rules and also increases our expenses even more. While all other operating costs are at an all time high and only seem to continue to increase.

Sincerely,

Bill

W. William Anderson

Box 959
Manomet MA 02345

Mary Colligan and All Concerned Memebers
NMFS
55 Great Republic Drive
Gloucester, MA 01930

Dear Sir or Madam:

I am currently fishing for lobsters in the waters south of Plymouth, MA. This is my 59 th. Season. I am now fishing, and have always fished single traps...each with a single buoy line. At my peak, I fished 400 traps, now I am fishing 120. When I started fishing for lobsters in the 50's, every one of the dozens of lobstermen in the Plymouth area fished singles. The first trawls appeared in our area during the early 70's. Generally, the earliest one could find traps appearing in the water was during the mid to late Spring, and virtually all of the gear was removed from the water by Jan 1. No one in our area fished for lobsters in the hard winter months. Many fishermen waited until after the shed, and did not place gear into the water until mid-June or even later...I adopted that procedure and still follow that schedule to this day.

Due to attrition and larger boats which are conducive to trawl fishing, the number of commercial fishermen using single trap buoy lines has dwindled to 5 fishermen in the area from Plymouth to Ellisville (about 7 Miles). I currently fish the most singles of the 5 active single trap fishermen in our waters. We all have our gear removed from the water by Nov. 1. In 2012, after a final sweep of the waters in our area, all singles with the exception of several rocked-down traps were out of the water...only trawls remained. Usually, any gear that is rocked or abandoned for whatever reason is brought ashore by storms. On the Western side of Cape Cod Bay, all gear moved by storms moves closer to shore, if not, completely onto the shore. No gear moves out into the Bay to become an entanglement threat.

During my 59 years as a lobsterman, involving an estimated 6000-7000 trips, I have never seen a Right Whale. I have seen 2 pods of Humpbacks, and 1 pod of Meinke. The reason, I believe, for such limited exposure to whales over such a great number of years is that single trap fishermen and whales are simply not in the area at the same time.

For the reasons stated above, I am urging the NMFS not to adopt a **" one size fits all "** approach toward amending the Large Whale Take Reduction Plan, but to incorporate into any plan, a clause which will allow single trap fishermen to exist.

Please review the following possibilities:

1. A **near shore exemption** for single trap buoy lines.
2. A **seasonal exemption** for single trap buoy lines (example: allowed only June 1 to Nov. 1)
3. A combination of # 1 and # 2.
4. A *grandfather* exemption...but with seasonal restrictions.

I do not see a need for further implementation of restrictions, and favor a ***status quo*** approach.

The whale population is on the rebound. Measures already in place are working. Humpbacks are proliferating, and the Right Whale numbers are ever gaining strength. What is working, **is working.** Give the measures already in place a chance.

Please do not eliminate my existence as a single trap fisherman. I do not have the boat or the physical ability to fish trawls.

Thank you for your attention.

Yours truly,

Paul H. Francis 005584

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

MARJORY STONEMAN DOUGLAS BUILDING
3900 COMMONWEALTH BOULEVARD
TALLAHASSEE, FLORIDA 32399-3000

RICK SCOTT
GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

September 3, 2013

Ms. Kate Swails, ALWTRP Coordinator
Protected Resources Division
NOAA/National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 01930-2276

RE: National Marine Fisheries Service – Draft Environmental Impact Statement for Amending the Atlantic Large Whale Take Reduction Plan (ALWTRP): Vertical Line Rule.
SAI # FL201307156655C

Dear Ms. Swails:

The Florida State Clearinghouse has coordinated a review of the referenced Draft Environmental Impact Statement (EIS) and proposed rule to amend the ALWTRP under the following authorities: Presidential Executive Order 12372; § 403.061(42), *Florida Statutes*; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

The Florida Fish and Wildlife Conservation Commission (FWC) submitted comments, concerns and recommendations regarding the draft EIS and rule in the attached letter, which is incorporated herein by this reference and made an integral part of this letter.

Based on the information contained in the submittal and comments provided by the FWC, the state has determined that the proposed federal action is consistent with the Florida Coastal Management Program (FCMP). We recommend further coordination with the FWC prior to implementation to ensure the proposal's continued consistency with the FCMP.

Thank you for the opportunity to review the draft EIS and rule. If you have any questions regarding this letter, please contact me at (850) 245-2170 or Lauren.Milligan@dep.state.fl.us.

Yours sincerely,

Lauren P. Milligan

Lauren P. Milligan, Coordinator
Florida State Clearinghouse
Office of Intergovernmental Programs

Enclosure

cc: Jessica McCawley, FWC
Scott Sanders, FWC

Florida State Clearinghouse

August 23, 2013

Ms. Lauren Milligan
Office of Intergovernmental Programs
Department of Environmental Protection
3900 Commonwealth Boulevard, Mail Station 47
Tallahassee, FL 32399-3000
Lauren.Milligan@dep.state.fl.us

RE: SAI # FL201307156655C – National Marine Fisheries Service (NMFS) – Draft Environmental Impact Statement for Amending the Atlantic Large Whale Take Reduction Plan (ALWTRP): Vertical Line Rule.

Dear Ms. Milligan:

The Florida Fish and Wildlife Conservation Commission (FWC) has completed agency review of the Draft Environmental Impact Statement (DEIS) and Proposed Rule for Amending the Atlantic Large Whale Take Reduction Plan (ALWTRP). The FWC provides the following comments and recommendations pursuant to the National Environmental Policy Act and the Coastal Zone Management Act/Florida Coastal Management Program.

Comments and Recommendations

Amendments to the ALWTRP are being proposed to implement conservation measures designed to reduce the risk of serious injury and mortality of right, humpback, and fin whales from entanglement in vertical lines from commercial trap/pot and gillnet fishing gear. Florida has prohibited the use of gillnets in state waters since 1995, but gillnet fisheries continue to operate in federal waters adjacent to Florida and trap/pot gear is used in both state and federal waters of Florida.

With regards to the North Atlantic right whale, the conservation measures in the proposed rule are expected to reduce right whale injuries and deaths attributed to entanglement in vertical lines. The FWC agrees with the need for additional conservation measures due to the presence of adult and neonate right whales co-occurring with the use of vertical line fishing gear in the Northern portion of Florida's Atlantic coast. The presence of neonate right whales is specific to this area of Florida, and of concern is that neonate whales do not have the strength that adult whales have and potentially run a higher risk of entanglement in vertical line fishing gear.

The FWC acknowledges there will be burdens placed on commercial and recreational fishers with the proposed regulatory measures identified in DEIS Preferred Alternative 5. Such burdens include but are not limited to:

- loss of income to commercial fishermen during the time needed to have traps/pots out of the water to convert existing gear to comply with proposed new gear requirements;
- cost of gear conversion for both recreational and commercial trap/pot gear fishers;
- significant reduction of fishing time for existing federal waters commercial trap/pot fisheries due to the proposed requirement to bring traps back to shore at the conclusion of each trip; and
- limit expansion of certain trap/pot fisheries into federal waters also due to the proposed requirement to bring traps back to shore at the conclusion of each trip.

In order to address these regulatory burdens on trap/pot fishery participants, the FWC strongly recommends that NMFS provide for an adequate period of time prior to implementation of the proposed amendments to allow for public education, and to allow for fishers to convert their trap/pot gear to comply with the new regulations. Additionally, the FWC and other affected states may also need time to make changes to trap/pot gear regulations that may be necessary to address inconsistencies between state regulations and NMFS' proposed amendments.

The FWC appreciates the opportunity to provide input on amendments to the ALWTRP. Should you require additional assistance regarding our comments, please contact Lisa Gregg at (850) 617-9621, or lisa.gregg@myfwc.com.

Sincerely,

Jessica McCawley
Director

jm/mr/lg

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale proposed rule

devholan@hotmail.com <devholan@hotmail.com> Thu, Aug 22, 2013 at 8:17 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

As a long-time supporter of the International Fund for Animal Welfare (IFAW), and a concerned member of the public, I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

I know you're receiving a ton of these robo-copied emails and this is just one more. So let me point out that IFAW does great work, always with the perfect blend of animal-friendly solution and respect for local commerce.

Please do the right thing and support Proposal 5.

Sincerely,

Dev Holan
8345 NW 66 St
Miami FL 33166
US
devholan@hotmail.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale propose d rule

jleclerc3087@yahoo.com <jleclerc3087@yahoo.com> Thu, Aug 22, 2013 at 5:04 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

As a supporter of the International Fund for Animal Welfare (IFAW), and a concerned member of the public, I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.While this proposed rule is intended to only address the threat of vertical lines associated with trap and pot fisheries, the cumulative impact from gillnet fisheries an.

I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5 with the additional points for strengthening this proposal I support Alternative 5, which promotes a positive, practical solution that is expected to achieve the greatest reduction in risk to whales while limiting impacts on local fishermen.

Sincerely,

Jane Leclerc
3087 South Woodrow Street
Arlington VA 22206
US
jleclerc3087@yahoo.com



NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

whale

konkman62@comcast.net <konkman62@comcast.net> Sun, Sep 8, 2013 at 3:21 PM
To: NMFS.NER.whale@noaa.gov

My name is David Demski Ma. permit holder 007023.I have pot fished in Buzzards bay and Vineyard Sound with single traps for 32 seasons.I fish alone and with a stern man when fishing is good and find single traps are much more profitable than fishing with trawls and are much safer.In 32 seasons I have NEVER SEEN a whale in state waters which is 3 miles from shore.It is VERY unfair to propose these new laws in areas where there are no whales.The low prices we are getting for our catch its not feasible to have to buy all new rope to fish trawls and what are we going to do with are single trap set ups I have over 800 bouys and single ropes?Any whale entanglement I have seen photos of are off shore poly balls with 7/16 rope or larger.All fisherman who use single traps in my area use 5/16 rope with brake away swivels.Many opinions are if a whale ever got tangled it would more likely survive a single pot tangle than a trawl with many traps and large diameter line.I think it is really unfair to have one rule fits all with these new rules.How can you say no more single traps cause of entanglement if there are no whales here?Narragansett Bay in R.I. is excempt and Buzzards Bay and Vineyard should be as well.These areas I fish are called Gosnold County in Ma. and there has been a state law prohibiting the use of trawls there,only single traps are alllowed to help the small fisherman survive.Laws for the Outer Cape and Cape Cod Bay are justified that's where these whales come to migrate and eat but that same law is not fair for the people in my area because there are no whales.There is not any data proving that there are whales in these waters so how can make a law that's defistating to the fisherman here when it is not needed?Most people fishing in my area are 50 years or older and fish alone and fish single traps because the are much safer and easier to move to different areas with out all the groundline around there feet.These new proposal are creating a safety hazard especially when there are no whales here.Its great that you are concerned about the whales and some changes are needed in the Cape cod Bay area but inshore areas like Buzzards Bay and Vineyard sound should be excempt like inshore Rhode Island ,New Hampshire and parts of Maine who have thousands of single traps.I hope you listen and think about comments like this because you are making new laws that hurt a lot of people and serve no purpose in these whale free environments.

RECEIVED
SEP - 3 2013
BY:

NMFS
55 Republic Drive
Gloucester, MA 01930
Attn: Mary Colligan, Assistant Regional Administrator for Protected Species

Written comment to the Atlantic Large Whale Take Reduction Plan (ALWTRP)

Dear Ms. Colligan,

The following comments of support or opposition to components of the ALWTRP are as follows.

a) I support the exemption of New Hampshire state waters and any alternative that has that as a component of the final plan.

b) I support the minimum number of 10 traps per trawl for waters between 3-12 miles and any alternative that has that as a component of the final rule.

c) I support the minimum number of 20 traps for waters beyond 12 miles and any alternative that has that as a component of the final rule.

d) Buoy line marking requirements for exempted waters in NH & ME should have separate colors.

e) **Buoy line marking requirements for lobster gear that travels from state waters to federal waters needs to be improved so as to be not confusing.**

f) **Marking the buoy lines 3 times in the length of the line and with each mark needing to be 12 inches in length seems excessive. Maintaining the mark at the top end of the buoy line is supported.**

g) **I strongly OPPOSE any alternative that includes the Jeffries Closure Area. Making this a requirement would not serve its intended purpose by any means and potentially increase any chance of an interaction with whales.**

I hope these comments will be incorporated in the final rule of the ALWTRP.

Sincerely

James E Reid 9-2-13

RECEIVED
SEP - 5 2013
BY:_____

NMFS
55 Republic Drive
Gloucester, MA 01930
Attn: Mary Colligan, Assistant Regional Administrator for Protected Species

Written comment to the Atlantic Large Whale Take Reduction Plan (ALWTRP)

Dear Ms. Colligan,

The following comments of support or opposition to components of the ALWTRP are as follows.

a) I support the exemption of New Hampshire state waters and any alternative that has that as a component of the final plan.

b) I support the minimum number of 10 traps per trawl for waters between 3-12 miles and any alternative that has that as a component of the final rule.

c) I support the minimum number of 20 traps for waters beyond 12 miles and any alternative that has that as a component of the final rule.

d) Buoy line marking requirements for exempted waters in NH & ME should have separate colors.

e) Buoy line marking requirements for lobster gear that travels from state waters to federal waters needs to be improved so as to be not confusing.

f) Marking the buoy lines 3 times in the length of the line and with each mark needing to be 12 inches in length seems excessive. Maintaining the mark at the top end of the buoy line is supported.

g) I strongly OPPOSE any alternative that includes the Jeffries Closure Area. Making this a requirement would not serve its intended purpose by any means and potentially increase any chance of an interaction with whales.

I hope these comments will be incorporated in the final rule of the ALWTRP.

Sincerely,

431 Dover Point Rd.
Dover, NH 03820

New Hampshire Commercial Fishermen's Association
P.O. Box 601
Rye, NH 03870

RECEIVED
SEP - 5 2013
BY:_____

NMFS
55 Great Republic Drive
Gloucester, MA 01930
Attn: Mary Colligan, Assistant Reg. Adm. for Protected Species

Re: Written Public Comment to Atlantic Large Whale Take Reduction Plan

This organization is submitting written comment to the Federal Register / Vol. 78 / No.136 dated Tuesday, July 16, 2013 on proposed rules for the Atlantic Large Whale Take Reduction Plan. We did attend the Portsmouth, NH public hearing on Aug. 20, 2013 to listen to the presentation of the plan and also make verbal comments at that meeting.
Our comments as are follows and are relative for the area of concern within the domain of NH lobster fishermen.

1) We do endorse the exemption provisions for New Hampshire state waters and support any alternative that includes that as a component of the plan.
2) We do support the minimum number of traps required per trawl (10 traps) for waters between 3-12 miles and any alternative that includes that as a component of the plan.
3) We do support the minimum number of traps per trawl (20 traps) for waters beyond 12 miles and any alternative that includes that as a component of the plan.
4) We do have concerns with the buoy line marking requirements as written in the proposed rule.
    a) The buoy line marking requirement for the two exempted areas (NH & ME) have the same color for both areas. It would be in the best interest of the rational and purpose of buoy line marking to have separate colors for these two exempted areas as there is a geographic difference between them that would not serve the best interest of each area in identifying buoy lines.
    b) Since lobster gear can and does travel between exempted state waters and federal waters the buoy line marking requirements in the proposed rule make it confusing and onerous. We recommend that these concerns be addressed in any final rule so that they eliminate this confusion of lobster gear traveling between state and federal waters.
    c) We feel that marking the buoy line at 3 locations and with the minimum length of 12' for each mark are excessive for the purpose of gear identification. Buoy line lengths change as fishermen fish different depths and it would be contrary to the purpose of the gear

marking requirement if fishermen complied with the 3 marks per buoy line only to fish an excessive length of buoy line when it might not be needed thus increasing the length of buoy line in the water.

5) **We are opposed to any alternative that includes the Jeffries Closure Area. Rational:**
    a) **Closure areas produce the result of concentrated fishing activity on the borders of the closure. For the purpose of this closure in the ALWTRP it would concentrate fishing gear and buoy lines on the perimeter of the closure, which in essence is not productive to the purpose of the plan to reduce potential interaction. The closure would create an unnatural fence around its perimeter thus increasing the possibility of interaction.**
    b) **If the closure boundaries are incorrect by reason of changing environmental conditions their purpose is compromised with little possibility of regulatory change due to the process required for any alterations to the plan. They become closures with little value to the purpose of the plan and also cause great negative economic consequences to the fishery.**
    c) **Area closures were not fully vented through the TRT process and meetings and adding them as an after fact in the configurations described in the ALWTRP is felt to not be transparent to the TRT process.**

These conclude our comments to the proposed rule for the ALWTRP and we hope these concerns are addressed in the final rule for the purpose of constructing a sensible and constructive plan, which best serves this issue.

Sincerely,

Erik Anderson, Pres.
New Hampshire Commercial Fishermen's Association

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale propose d rule

vickilsmith2005@yahoo.com <vickilsmith2005@yahoo.com> Thu, Aug 22, 2013 at 8:40 AM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

As a supporter of the International Fund for Animal Welfare (IFAW), and a concerned member of the public, I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

I, and other environmentally concerned people, are kept informed by various organizations. I am going to skip the resending of technical jargon that I'd have to assume you are already aware of. Instead I'd like to say:

We all stand on the shoulders of those that have gone before. We 'inherit' their improvements but also their mistakes. People have pillaged the lands and seas - fished like there is no tomorrow, logged forests like they will go on forever; hunted like game will never decrease, etc.

The world today is a lot 'smaller' than it used to be in that it is explored, profited from and thoroughly exploited.

It is now TIME to pull back, slow down and do the right thing. We can NOT continue to take and take and take without dire consequences.

It can no longer be acceptable to use the excuse of needing today's profit at the expense of the long-term risk of diminishing the environment. We not have to use our big brains to protect and prevent and not just pillage and profit. We are only just now really starting to learn of how intelligent whales and dolphins are; how incredible the journeys of sea turtles and so on. But they need a break - a 'brake' from our negative activities that endanger them.

I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5 with the additional points for strengthening this proposal. It is the right thing to do now that we know more. We need to stand for the future also.

Sincerely,

Vicki Smith
222 Lower Falls Dr
Black River Falls WI 54615
US
vickilsmith2005@yahoo.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale proposed rule

shurt@live.com <shurt@live.com> Fri, Aug 23, 2013 at 6:52 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

As a supporter of the International Fund for Animal Welfare (IFAW), a person who lives full-time on the water and a concerned member of the public, I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

I understand that human-induced serious injuries and deaths due to incidental entanglement in fishing gear has exceeded the recommended Potential Biological Removal (PBR) level defined for these whale species.It is imperative that more is done to reduce this threat. Therefore, I support the measures laid out in NOAA's preferred alternative, Alternative 5, and ask that the agency include these measures in the final rule making process.

It is especially important to close fishing areas seasonally that have high concentrations of right whales present concurrently with the fishing season. It is also important to make the regulations consistent throughout the areas of concern to insure that fisherman understand and implement the regulations.

However, all of these efforts will go to waste without continued and improved enforcement and monitoring. NOAA needs to increase their effort and funding for enforcement to improve compliance with existing regulations, while also establishing plans for enforcement of these new regulations. As part of this effort, ensuring continued funding for large whale research and disentanglement is imperative. Boat and aerial surveys funded by private and federal research grants allow scientists to track changes in the whale populations, monitor their status and inform our understanding of the impact and effectiveness of these regulations. Without these surveys, and support of large whale disentanglement teams, many more injured whales will go unaided. With the North Atlantic right whale just beginning to show signs of slow recovery, now is not the time to back down on these efforts.

While this proposed rule is intended to only address the threat of vertical lines associated with trap and pot fisheries, the cumulative impact of all offshore human activities needs to be taken into account.

I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5 with the additional points for strengthening this proposal as described above.

Sincerely,

Sonia Hurt
9540 Semiahmoo Pky
Blaine WA 98230
US
shurt@live.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale propose d rule

barb@nightowlcreations.com <barb@nightowlcreations.com> Wed, Aug 21, 2013 at 11:22 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

We have very few whales left in the world now, so Please do what you can to protect the whales that remain.

At the very least, Limit fishing in their seasonal areas and restrict fishing lines that entangle them there.

As a supporter of the International Fund for Animal Welfare (IFAW), and a concerned member of the public, I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5.

THANK YOU for your time and attention to this critical issue, Please Act Fast ~

Sincerely,

Barbara Holladay-Vernon
2413 Kayewood Drive
Denton TX 76209
US
barb@nightowlcreations.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale propose d rule

cyclenuts@cox.net <cyclenuts@cox.net> Wed, Aug 21, 2013 at 11:18 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

A concerned member of the public, I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

I support the measures laid out in NOAA's preferred alternative, Alternative 5, and ask that the agency include these measures as well as those described below in the final rule making process.

1.) For inclusion are the seasonal closures for Jordan Basin, Jeffrey's Ledge and Cape Cod Bay/Outer Cape, aimed at reducing fishing effort in key areas known to have high concentrations of right whales co-occurring with high fishing activity.

2.) The exemptions included for Maine and New Hampshire state waters are of major concern, particularly as Maine state waters include approximately 50% of all recorded vertical lines in the Northeast region.

3.) The proposed gear-marking scheme that only adds new fishing line markings for these state exempted waters is likely to fall short of the needs of the scientists, fishermen and NOAA alike. Therefore, I encourage NOAA to include additional gear marking for trap/pot and gillnet fisheries, particularly in the Northeast to allow scientists to better make these determinations.

4.) The patchwork of regulations set up for the Southeast region. The proposed rule will make it more challenging for fishermen to adjust their gear accordingly, while also making enforcement more difficult.

5.) Continued and improved enforcement and monitoring. NOAA needs to increase their effort and funding for enforcement to improve compliance with existing regulations, while also establishing plans for enforcement of these new regulations.

6.) Continued funding for large whale research and disentanglement is imperative. Boat and aerial surveys funded by private and federal research grants allow scientists to track changes in the whale populations, monitor their status and inform our understanding of the impact and effectiveness of these regulations.

7.) The cumulative impact from gillnet fisheries and other human activities, such as offshore wind farms, needs to be more fully accounted for before final rule making is completed.

I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5 with the additional points for strengthening this proposal as described above.

Sincerely,

Steven Miller
10057 Rancho Capitan
Lakeside CA 92040
US
cyclenuts@cox.net

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale proposed rule

kundaleewicce@grandecom.net <kundaleewicce@grandecom.net> Wed, Aug 21, 2013 at 10:15 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

I thank the NOAA for developing this new rule to amend the Atlantic Large Whale Take Reduction Plan so there is less risk of entanglement in vertical lines. I enthusiastically support the proposed rule.

More specifically I support Alternative 5.

Please also include seasonal closures for Jordan Basin, Jeffrey's Ledge and Cape Cod Bay/Outer Cape. I do not support establishing different regulations in critical habitats, state waters and federal waters.

To allow for better data collection please include additional gear marking for trap/pot and gillnet fisheries, particularly in the Northeast.

And finally, please do all you can to increase funding for enforcement and research.

Thank you.

Sincerely,

Kunda Wicce
6607 Willamette Dr.
Austin 78723
US
kundaleewicce@grandecom.net

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Propose d rule on ALWTR

april.hayden@hotmail.com <april.hayden@hotmail.com> Wed, Aug 21, 2013 at 10:00 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mrs. Colligan,

I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines. This is a great endeavor! I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5 with the additional points for strengthening this proposal as described below.

Of particular importance for inclusion are the seasonal closures for Jordan Basin, Jeffrey's Ledge and Cape Cod Bay/Outer Cape, aimed at reducing fishing effort in key areas known to have high concentrations of right whales co-occurring with high fishing activity. Without these closures, I understand that the recommended measures are unlikely to achieve the necessary reduction in risk required to reduce take below PBR. So I politely request NOAA to include these closures as described in Alternative 5 in the final rule.

As a resident of Florida, I am concerned by the regulations set up for the Southeast region. By establishing different regulations across critical habitat, state waters and federal waters, the proposed rule will make it more challenging for fishermen to adjust their gear accordingly, while also making enforcement more difficult. And with many of the proposed "restrictions" in the Southeast and Mid-Atlantic calling for retaining the status quo, the risk in these areas, particularly for right whale mother and calf pairs and humpback whales, respectively, does not seem to be adequately addressed.

However, it seems like the most important task is continued and improved enforcement and monitoring. NOAA should consider establishing plans for enforcement of these new regulations. As part of this effort, ensuring continued funding for large whale research and disentanglement is imperative. Boat and aerial surveys funded by private and federal research grants allow scientists to track changes in the whale populations, monitor their status and inform our understanding of the impact and effectiveness of these regulations. Without these surveys, and support of large whale disentanglement teams, many more injured whales will go unaided. With the North Atlantic right whale just beginning to show signs of slow recovery, we should not back down on these efforts.

THANK you for your time and energy!!

Thanks!

April Montgomery
2926 Stanfield Ave
Orlando FL 32814
US
april.hayden@hotmail.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale proposed rule

hbgreen@frontier.com <hbgreen@frontier.com> Wed, Aug 21, 2013 at 7:52 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

As a supporter of the International Fund for Animal Welfare (IFAW), and a concerned member of the public, I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

With human-induced serious injury and mortality due to incidental entanglement in fishing gear exceeding the recommended Potential Biological Removal (PBR) level defined for these species it is imperative that more is done to reduce this threat. Therefore, I support the measures laid out in NOAA's preferred alternative, Alternative 5, and ask that the agency include these measures as well as those described below in the final rule making process.

While this proposed rule is intended to only address the threat of vertical lines associated with trap and pot fisheries, the cumulative impact from gillnet fisheries and other human activities, such as offshore wind farms, needs to be more fully accounted for before final rule making is completed.

I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5 with the additional points for strengthening this proposal as described above.

Sincerely,

Holly Green
2009 I Ave.
Anacortes 98221
US
hbgreen@frontier.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Save Our Friends, the Whales

lichen@sprynet.com <lichen@sprynet.com> Wed, Aug 21, 2013 at 7:39 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,
I have had a lot of contact with both humpback and gray whales. I have found them to be intelligent compassionate creatures and want to help protect all whales, including right whales, from unnecessary suffering, injury and death. I have long opposed fishing nets, vertical lines, gillnets and other gear injury to sealife. I have seen whales and sea turtles seriously injured by strangulation of their fins due to fishing lines and by ingestion of fishing hooks. I find a lot of this washing up on the beaches. For these reasons, I want to express my support of NOAA's Alternative 5 and seasonal closures for Jordan Basin, Jeffrey's Ledge and Cape Cod Bay/Outer Cape. Please include these measures.
Vertical lines and gillnets should be completely out-lawed. Many of them exist in the waters of Maine and New Hampshire. Gear-marking increases the possible tangles of whales with fishing line. Having spent a lot of time in Florida and witnessing the disregard and lack of compassion for sea life by fishermen there, I feel the entire east coast needs stronger regulations to protect whales and sea life from the littering of fishing line in our precious oceans.
In an effort to help the dwindling population of some of the world's most precious creatures, I hope consideration of all things affecting sea life is considered, including boat speed and potential wind farm development.
I thank NOAA to strengthen protection for our friends, the whales. I hope there will be increasing support of Alternative 5 and the other protections listed above. Thank you for considering my heart-felt wishes to protect those who desperately need our help and count on us to help them.

Sincerely,

Tracy Hendershott
1314 4th Place
Kirkland WA 98033
US
lichen@sprynet.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Illegalize the Entangling of Whales

lawrencerosin@yahoo.com <lawrencerosin@yahoo.com> Wed, Aug 21, 2013 at 7:30 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,
Don't allow people to entangle whales. According to IFAW entangling whales could actually kill them. Whales are living things, and aren't people's property. Also those whales could have kids. If that whale is killed, then his/her kids will have one fewer parent to take care of them. If those kids already had one parent to take care of them, then they'll have no parents to take care of them. Like let's say a person riding a row boat killed one of the kids' parents for money. Then those kids will probably die with no parents to take care of them. Those who kill them will be responsible for the whale's kids' deaths in that way. They can't get away with this.

Sincerely,

Lawrence Rosin
S.A.
N.Y. NY 11224
US
lawrencerosin@yahoo.com

RECEIVED
SEP - 9 2013
BY:_____

NMFS
55 Republic Drive
Gloucester, MA 01930
Attn: Mary Colligan, Assistant Regional Administrator for Protected Species

Written comment to the Atlantic Large Whale Take Reduction Plan (ALWTRP)

Dear Ms. Colligan,

The following comments of support or opposition to components of the ALWTRP are as follows.

a) I support the exemption of New Hampshire state waters and any alternative that has that as a component of the final plan.

b) I support the minimum number of 10 traps per trawl for waters between 3-12 miles and any alternative that has that as a component of the final rule.

c) I support the minimum number of 20 traps for waters beyond 12 miles and any alternative that has that as a component of the final rule.

d) Buoy line marking requirements for exempted waters in NH & ME should have separate colors.

e) Buoy line marking requirements for lobster gear that travels from state waters to federal waters needs to be improved so as to be not confusing.

f) Marking the buoy lines 3 times in the length of the line and with each mark needing to be 12 inches in length seems excessive. Maintaining the mark at the top end of the buoy line is supported.

g) I strongly OPPOSE any alternative that includes the Jeffries Closure Area. Making this a requirement would not serve its intended purpose by any means and potentially increase any chance of an interaction with whales.

I hope these comments will be incorporated in the final rule of the ALWTRP.

Sincerely Vincent J. Marani

Fisherman For 40 yrs.

Massachusetts Lobstermen's Association, Inc.
8 Otis Place
Scituate, MA 02066-1323
Bus. (781) 545-6984 Fax. (781) 545-7837

RECEIVED
SEP - 9 2013
BY:_____

September 5, 2013

Mary A. Colligan
Assistant Regional Administrator for Protected Resources
Northeast Regional Office
NOAA Fisheries Services
National Oceanivc and Atmospheric Administration
55 Great Republic Drive
Gloucester MA 01930

Dear Ms Colligan

The 1300 members of the Massachusetts Lobstermen's Association would like to submit the following comments with regards to the National Marine Fisheries Services (NMFS) Draft Environmental Impact Statement proposed rule for its **Atlantic Large Whale Take Reduction Plan.**

We can only support **Alternative 1, Status Quo.** Even though the Service has rejected this alternative, we don't believe there has been sufficient evidence to prove that what we have already done to reduce interactions with whales has not worked. The numbers of whales have been increasing so something is working. We actually believe that in the case of the Humpback Whale, there are now so many that they should be delisted from the MMPA and the ESA. We understand the Potential Biological Removal (PBR) argument but we question who sets those numbers. With whale populations growing even for Right Whales, the PBR's should be much higher. Both the fishermen and the NMFS are being forced to deal with an unreasonable situation – a No-Win scenario. Also, with more whales frolicking in the great Atlantic pond, there is the possibility of more interactions. We don't believe that any of these alternatives will really reduce the rare occurrences when there is an interaction between a fisherman's lobster buoys and a whale.

The Service's projections of how much risk reductions would take place by reducing buoy lines is not accurate, is computer generated and done by extrapolations. It may work in the computer but in the real world where fishermen and whales live, it just isn't real, not to mention the compliance factor which we'll discuss further in our comments.

As you know the fishermen have eliminated the risk factor on ground lines which comprises most of the rope in the ocean. We have placed break-aways (weaklinks) on our buoys. Most fishermen have converted to trawls, not due to the whale issue but to cut down on gear loss. This alone has reduced the number of buoy lines from when we all fished singles. There has been large reductions in traps fished, again, not because of the whale issue, but because of the lobster resource management and a general reduction in fishermen.

We contend that through all these years, the whales have done very well making their yearly pilgrimages from the south to the north and back and through what has been millions of buoy lines over the years. Now as we've stated, the buoy lines are greatly reduced and the whale numbers have increased. It's true that interactions can occur and will but these proposals are like playing a "shell game" in the big Atlantic Ocean. We don't close an expressway down if there is a fender bender and we contend that people, the fishermen in this case, are just as important as whales.

We therefore can only support a status quo position which is Alternative 1 and suggest that we wait and see if all we've done continues to increase the whale population which is the ultimate goal of the Federal Whale Plan.

As regards to the other alternatives

Singles Vs Trawls Alternative 2,3,4,5,6
Many fishermen in the Outer Cape and Cape Cod Bay use singles. It is their preference for various reasons. Most of these singles are fished close to shore and extend only to about 2 miles out from the shore. It is many times in and around rocky bottom. Could whales come in that close, yes, but chances are slim of having an interaction. It should be noted that if there is an interaction, experts have already stated that a single trap/buoy line is less likely to cause a problem for the whale than having an interaction with a trawl buoy line. The whale can move rather then be anchored and in many cases shed the line. Do we have "confirmed" interactions between whales and singles fished in these areas? If we don't have positive confirmation, why penalize these fishermen. May we suggest an exemption line here since the recreational lobster fishermen fish singles too and they are not included in the plan. How can you separate the two groups? Another factor here is that singles are already not allowed in the Cap Cod Bay Critical Habitat during the winter which is when the whales visit that area. The Outer Cape already has a closed season for lobster management reasons and with the support of those fishermen. This also happens to be during most of "*whaletime* in that area. As an additional note, the fishing area in Gosnold Mass at the southern tip of the Elizabeth Islands, singles are mandated by State law with the fishermen there in support of that provision. Why stir up a hornets nest over that small area and those fishermen?

Moving onto Trawls
Mandating that trawls be fished becomes a safety issue.

a) Mandating that a trawl of some number must be fished may be more than that size boat can handle safely. As an example, a 5 to 10 pot trawl may not safely work on an 18' to 25' vessel. This could turn into a USCG safety issue.

b) Mandating that1 buoy line be used on some trap number trawl is a safety issue. Fishermen need to haul their trawl from one end or the other depending on the tide or wind conditions. To force them to always haul from one end could put the safety of that operation in jeopardy.

c) Mandating 1 buoy line on some trawl may cause the loss of that gear. If the one buoy line is lost, which can happen, the whole trawl is down and can only be retrieved by grappling since the fishermen can not just go to the other end buoy and get the trawl back! The grappling part is not easy since you've eliminated floating ground lines which could be used to better retrieve lost gear.

d) Mandating! 1 buoy line on a trawl invites gear conflict. If a trawl is set with one buoy line another fishermen may not see it and won't know which way the trawl is set. He might then set his trawl on top of the existing trawl and now we have a gear conflict between fishermen.

This whole idea and its possible consequences again, raises the issue of who or what is more important, the whale or the safety of our fishermen and does the Services (NMFS) really care? *This is a loaded question,* be careful of how the Service responds to this!!

Closed Areas (Alternatives 4,5,6)

These proposals are just not necessary. As we indicated at the public hearings, the Massachusetts Lobstermen's Association will oppose any closures to lobster fishing as it always has **unless** the fishermen in an area supports such a closure. There has been a closure in the winter in the Outer Cape area but these fishermen agreed to it for management reasons. Fishermen in the Upper Cape Cod Area agreed to a small closure for traps during a short fall time period to accommodate ground fishermen to access that area. These selective closures we did support, once again, because our fishermen supported them. Other than that we will not support and will oppose the closures proposed in the Services proposed rule.

a) Cape Cod Bay We already have a closure during whale time (winter) to singles and restrictions on trawl gear in that area. (No one can document that there has been any interaction with whales by the few fishermen that do continue to fish in Cape Cod Bay in the winter. No proof, means no reason to change anything there.

b) The proposal to close an area north of Cape Cod Bay in the winter is not warranted. There are not a lot of fishermen fishing at this time in that area so there are not a lot of buoys there. To these fishermen however, it is important for them to be able to fish there at that time. We are referring to the area cited on page 20-21 of the public hearing attachments 7-8. Where would these lobstermen still fishing be able to fish during this time of the proposed closure? This encompasses almost all of our fishermen's winter fishing area.

c) Jeffreys Ledge This proposal is unnecessary. The same rationale described above is still valid. The few fishermen that do fish there in the fall and winter do not amount to a serious buoy line conflict. For this area, the fall (Oct – Jan) and early winter is important to them as lobsters move out from inshore areas; the same scenario for the north of Cape Cod Bay. This proposed closure hits right

when fishing is good in that area for those still fishing. Once again, we must note that buoylines are at a minimum, trawls are fished and there's been no proof that the fishing activity on Jeffreys Ledge has caused any problem. Why crucify these fishermen in the name of buoy line reduction over a non-issue?

In looking at these proposed closures in general, mandating that gear be removed from these areas only means that the fishing gear will be placed outside and around the closed area. This creates a corral effect where whales "playing": in a closed area would still have to go through buoylines outside and around the closed area to continue their annual movements. *Who will tell the whales that they must stay in their corral ??!!* While the computer model risk would be diminished in a closed area, it would increase as they try to exit that "sacred" area. This is another shell-game exercise! Keeping these areas open to fishing and whales spreads out any risk. The wider area with a few buoy lines opens more buoy free portions of the ocean for the whales to swim.

Still another factor is fishermen can't remove all their gear quickly. This is an important factor. Poor weather in the fall and winter frequently keeps boats in port sometimes for days. Fishermen would have to start removing traps from an area weeks ahead and in the case of the proposed closure areas, fishing is good at these times in those areas at least into the early winter when they can get out given weather conditions. The price for lobster is also high since it's approaching one of the highest demand periods of the year for lobster, which are the Christmas-New Year holidays.

Mandating closures at these times would also be a safety factor. If a fisherman tries to load too many traps on his boat to get them out of an area to be closed, he risks having his boat overloaded which would make his boat unsafe and if it is rough, could even capsize.

Social and Economic Impact

The proposal includes some statistics on the Social and economic impacts. This is yet again another exercise in computer modeling and extrapolations developed in some office somewhere. This does not show the real impact in the real world. These are only "estimates". What happens if the impacts are greater ? Is the Services prepared to compensate fishermen if the impact is more severe? Is the Service prepared for this?

Buoy Marking

This proposal won't save one whale. All it will do is to cause more hardship for fishermen and try to assess "blame" to some fishermen. We are all trying at least up until now, to help save whales. Fishermen already have marked their gear mid-way on their buoylines and there has been no definitive result. Making fishermen do more marking is not likely to improve this. If the top end of a buoy line is somehow on a whale, there is the likelihood there will be a buoy too. The identification is possible. If the bottom of the line is somehow there, there will be a trap, identification is also possible. The one mid-way color marking is adequate. Making that mark larger to a foot is not a problem but that should be it and even here we question what difference it would really make !? No additional marks on that one buoy line should be necessary. Once again, as has been the

case in all of this, there is no proof that this idea has or could accomplish anything positive. Leave it alone!

Compliance This is an important factor!
If the rules are reasonable, fishermen will comply. If they are not, they won't. These proposals are not. A rule in federal rulebook will not save any whales. Only if that rule is complied with in the "real world" will it potentially do something in the quest to reduce the risk to whales. Enforcement opportunities are lean and almost non-existent. It's a big ocean. Will fishermen be faced with playing catch me if you can"? We encourage the Service to make the rules reasonable and doable if you want to succeed.

In Summation
Our fishermen have been willing to join the cause to help save all whales from any interactions with their gear. They've done a lot and it's been mostly at their expense. Unfortunately now, they are increasingly becoming unwilling to help anymore. This is due to the seemingly unending assault on them to do more. Nothing will ever be perfect but we have all been trying. The fishermen's attitude is now, enough is enough. This now is causing a movement to attack the laws that are causing all this controversy and the voices will become louder. Why not ease this epic adventure by leaving the current rules where they are and further monitor what we have in place? It has been mentioned that the fishermen themselves should petition to be listed as an *Endangered Species*! Some may chuckle over this remark **BUT**, once again, who or what is more important here, the human fishermen or the whales? Hopefully we can coexist and that choice won't have to be made.

We appreciate the opportunity to comment and want to reiterate that we all want to save whales but we also must save our fishermen as well.

We would be very willing to discuss these issues further if you think it will be productive.

Respectfully yours

William A Adler
Executive Director

Cc Senator Edward Markey
Senator Elizabeth Warren
Congressman Steven Lynch
Congressman John Tierney
Congressman William Keating

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale proposed rule

fireangel@comcast.net <fireangel@comcast.net> Sat, Aug 24, 2013 at 2:02 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

As a supporter of the International Fund for Animal Welfare (IFAW), and a concerned member of the public, I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

I support the measures laid out in NOAA's preferred alternative, Alternative 5, and ask that the agency include these measures as well as those described below in the final rule making process. I also support continued and improved enforcement and monitoring. Ensuring continued funding for large whale research and disentanglement is imperative.

While this proposed rule is intended to only address the threat of vertical lines associated with trap and pot fisheries, the cumulative impact from gillnet fisheries and other human activities, such as offshore wind farms, needs to be more fully accounted for before final rule making is completed.

I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5 with the additional points for strengthening this proposal as described above.

Sincerely,

Leslie Cirigliano
1084 N 300 W
Sunset UT 84015
US
fireangel@comcast.net

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale propose d rule

dih_flousa@live.com <dih_flousa@live.com> Wed, Aug 21, 2013 at 6:23 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

As a supporter of the International Fund for Animal Welfare (IFAW), and a concerned member of the public, I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

With human-induced serious injury and mortality due to incidental entanglement in fishing gear exceeding the recommended Potential Biological Removal (PBR) level defined for these species it is imperative that more is done to reduce this threat. Therefore, I support the measures laid out in NOAA's preferred alternative, Alternative 5, and ask that the agency include these measures as well as those described below in the final rule making process.

Please include seasonal closures for Jordan Basin, Jeffrey's Ledge and Cape Cod Bay/Outer Cape, aimed at reducing fishing effort in key areas known to have high concentrations of right whales co-occurring with high fishing activity. I strongly urge NOAA to include these closures as described in Alternative 5 in the final rule.

We can make a difference for the safety of other creatures on this planet. The whales live in the ocean and need us to keep their world safe for them to swim in, eat in and live in - just as God intended when he created the whales. We share this world and we need to do all that we can to keep it safe for those who can not speak for themselves. Please do all that you can to insure the whales are protected from life threatening entanglements.

Other letters include details and data so I just want to share that I am deeply concerned for the plight of the whales and look to you and others to do what is best for their survival and safety. Please be the difference between life and death for the whales - insure them safety and life.

I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5.

Sincerely,

Debbie Haynes
14510 Old Halls Ferry
Florissant 63034
US
dih_flousa@live.com

NMFS.NER Whale - NOAA Service Account <nmfs.ner.whale@noaa.gov>

Large whale proposed rule

jj@jennyjonesphoto.com <jj@jennyjonesphoto.com> Wed, Aug 21, 2013 at 1:48 PM
To: nmfs.ner.whale@noaa.gov

Mary Colligan
NMFS Northeast Region
55 Great Republic Dr
Gloucester MA
01930

Dear Mary Colligan,

I am writing to comment on the proposed rule to amend the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement in vertical lines.

I support the measures laid out in NOAA's preferred alternative, Alternative 5, and ask that the agency include these measures as well as those described below in the final rule making process.

An important inclusion is the seasonal closures for Jordan Basin, Jeffrey's Ledge and Cape Cod Bay/Outer Cape, aimed at reducing fishing effort in key areas known to have high concentrations of right whales co-occurring with high fishing activity. Without these closures, the recommended measures are unlikely to achieve the necessary reduction in risk required to reduce take below PBR. So I strongly urge NOAA to include these closures as described in Alternative 5 in the final rule.

I commend NOAA on their efforts to develop this new rule and encourage continued support of Alternative 5 with the additional points for strengthening this proposal as described above.

Sincerely,

Jenny Jones
2317 Mtn. Creek Church Rd.
Starr SC 29684
US
jj@jennyjonesphoto.com

F/V HULL'S SEA LOVER

Ms. Mary Colligan, Assistant Regional Administrator for Protected Resources
National Marine Fisheries Service (NMFS)
Northeast Region (NERO)
55 Great Republic Drive
Gloucester, Massachusetts 01930

Attention: Atlantic Large Whale Take Reduction Plan Proposed Rule and Draft Environmental Impact Statement http://www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2013-0095

Date: Saturday September 07, 2013

Ms. Colligan,

My name is Jimmy Hull and as a Commercial Black Sea Bass (BSB) pot fisherman out of Ponce Inlet, Florida, I wish to submit my written comment about the NMFS proposed rule for the Atlantic Large Whale Take Reduction Plan (ALWTRP) and the draft environmental impact statement (DEIS).
Recently Protected Resources division of the National marine Fisheries service has implemented a ban on the use of (BSB) pots in the Snapper/Grouper Fishery during the Months of November ,December, January, February, March, and April every year. The (BSB) pot fishery has traditionally been fished during the winter months for 50 years because of the availability of high quality (BSB) during the winter migration. This ban has harmed our Ability to produce high quality, healthy, Seafood to the American Consumers who are provided access to this Marine Food resource thru Commercial Fisherman using (BSB) pots. This ban has harmed individuals, Communities, Businesses and the economy of the country. This broad ban on vertical lines to reduce the risk of entanglement of Mammals should not include (BSB) pot gear. The South Atlantic Fishery Management Council has already done that job for you in the most recent regulations that have changed the way we use vertical lines in the (BSB) pot fishery.

As a professional commercial BSB pot fisherman, I wish to share the following thoughts. My question to you is this: Does the Protected Resources Division, the decision makers, understand BSB pot gear? What it looks like, how it's constructed, how we fish it, where we fish it, **and especially the regulatory changes that have been made to the fishery in the past 2 years**?

BSB pots are light weight fishing gear and can easily be pulled by hand. We fish our pots by constantly moving them from one live bottom spot to another, for one or two hour soak times. We fish small pots much like hook and line gear right on top of the bottom where the fish are. Each permitted vessel can have a maximum of 35 pots to work. We must tend our gear and return the pots back to port at the end of the fishing trip. Most of us from Florida fish 15 to 30 miles offshore in 60 to 150 feet of water. Most of us are day boats as we have a 1000-pound gutted weight trip limit for BSB. Trips are usually less than 24 hours long so BSB pot vertical lines are in the water for a very short time while in use, then we bring the pots back to shore until the next trip.

I use 29 pots and they are never out of my sight while moving and soaking the gear. I am fishing far offshore the North Atlantic right whale migration route, which is normally along the beach around state waters. I have never seen a right whale offshore where I pot fish. I was born and raised here in Ormond Beach, Florida. I am 58 years old and in my 40 years of commercial fishing the right whales I have seen are just outside the surf line always within 3 miles of the beach.

There are approximately 30 BSB pot fishermen from Cape Hatteras, North Carolina to Cape Canaveral, Florida, an area of thousands of square miles. If we all used the maximum 35 pots permitted there would only be 1050 vertical lines in that vast expanse of water. And that would be if everyone was fishing at the same time with the maximum number of pots. That is 30 vessels constantly moving and tending 1050 lines collectively, and then returning them back to shore at the end of the fishing trip.

All of these recent changes to the BSB pot fishery will reduce the number of pots in the water and most important will require pots be returned to shore at the end of the fishing trip, thus totally eliminating any risk of entanglement to protected species.

111 West Granada Blvd.
Ormond Beach, Florida 32174-6303

We have never caught a right whale in BSB pot gear and now with the newest regulations and the down-sized fishery because of endorsements, we never will. I would welcome a further discussion about BSB pot gear with you as I hope to be able to accomplish being allowed to fish during the winter months.

Below are bullet points taken from the ALWTRP documents that affect our commercial BSB business.

Southeast Region: The most recent amendment, 18A, includes management actions to limit participation and effort in the black sea bass fishery. Measures include establishment of an endorsement program, commercial trip limit, increasing minimum size limits for commercial black sea bass to 11 inches, and other modifications to the commercial pot fishery. Vessels are now limited to 35 pots per trip and all pots must be brought back to shore at the conclusion of each trip.

• Regardless, fishermen are now required to bring all black sea pots back to shore at the end of each trip and this will likely decrease the entanglement risk to right whales because it is expected to reduce ghost fishing and the amount of time vertical pot lines are in the water.

• In state waters traps must be set with one buoy line and not multiple-trap trawls. The breaking strength of the weak link between the buoy and vertical line does not exceed 600 lbs (Georgia/South Carolina) and 200 lbs (Florida). The breaking strength of the vertical line would not exceed 1,500 lbs. The whole buoy/vertical line (from trap/pot to buoy) should be the same diameter and free of objects (i.e. ALWTRP-DEIS 3-7 knot-free, splice-free, etc.) and the buoy/vertical line must be made of sinking line.
• In Federal waters must be set with one buoy line with one trap and not multiple-trap trawls. Trap/pot gear must be brought back to shore at the conclusion of each trip. The whole buoy/vertical line (from trap/pot to buoy) should be the same diameter and free of objects (i.e. knot-free, splice-free, etc.) and is made of sinking line.

Coastwide:

• Robust gear marking. See Section 3.1.7 for description of the proposed gear marking scheme.
• Regulatory language changes to better define and clarify previously implemented requirements. See Exhibit 3-6 for description of language changes. The proposed gear marking scheme would maintain the current color combinations but increase the size and frequency of the mark. The new mark must equal 12" in length and buoy lines must be marked three times (top, middle, bottom). A mark for the Maine exempted waters would be also required. A mark for the new Southeast US Restricted Area North would be required for both state and Federal water. This proposal would continue to allow multiple methods for marking line (paint, tape, rope, etc).

Entanglements in Commercial Fishing Gear
Regulations to Reduce Incidental Takes of Protected Species

The southern Atlantic black sea bass trap/pot fishery is listed as a Category II fishery (Atlantic mixed species trap/pot) due to potential interactions with marine mammals, particularly the endangered North Atlantic right whale.

Amendment 18A introduced a number of regulations to the black sea bass fishery which will have an unknown effect on protected species, including right whales. Because the number of trap pots and participants was reduced, the potential entanglement risk from this gear type may be reduced provided remaining fishermen do not increase their effort. However, if the reduction in participants and pots, increases effort among the remaining participants or extends the fishing season so that it overlaps with right whale calving season, the entanglement risk could remain the same or increase. Regardless, fishermen are now required to bring all black sea pots back to shore at the end of each

trip and this will likely decrease the entanglement risk to right whales because it is expected to reduce ghost fishing and the amount of time vertical pot lines are in the water.

Thank you,

Captain Jimmy Hull
F/V Sea Lover # 697155
386-547-1254



Kate Swails - NOAA Federal <kate.swails@noaa.gov>

Fwd: EPA's Comment Letter for Draft EIS for Amending the Atlantic Large Whale Take Reduction Plan: Vertical Line Rule (CEQ No. 20130202).

Mary Colligan - NOAA Federal <mary.a.colligan@noaa.gov> Fri, Sep 13, 2013 at 2:44 PM
To: David Gouveia <David.Gouveia@noaa.gov>, Kate Swails - NOAA Federal <Kate.Swails@noaa.gov>, Michael Asaro - NOAA Federal <Michael.Asaro@noaa.gov>

---------- Forwarded message ----------
From: Aresta-DaSilva, Jessica <Aresta-DaSilva.Jessica@epa.gov>
Date: Fri, Sep 13, 2013 at 2:44 PM
Subject: EPA's Comment Letter for Draft EIS for Amending the Atlantic Large Whale Take Reduction Plan: Vertical Line Rule (CEQ No. 20130202).
To: "Mary.A.Colligan@noaa.gov" <Mary.A.Colligan@noaa.gov>
Cc: "Hessert, Aimee" <Hessert.Aimee@epa.gov>, "Rader, Cliff" <Rader.Cliff@epa.gov>

Ms. Colligan,

You will find attached to this e-mail EPA's comment letter on the Draft Environmental Impact Statement (DEIS) for Amending the Atlantic Large Whale Take Reduction Plan: Vertical Line Rule (CEQ No. 20130202).

EPA appreciates the opportunity to review this project. If you have any questions regarding the EPA's comment letter please contact me at: aresta-dasilva.jessica@epa.gov or (202) 564-1567.

Thank you,

Jessica Aresta-DaSilva

(202) 564-1567

aresta-dasilva.jessica@epa.gov

--

Mary Colligan
Assistant Regional Administrator for Protected Resources
Northeast Regional Office
NOAA Fisheries
Mary.A.Colligan@noaa.gov
ph: 978-281-9116
www.nmfs.noaa.gov




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Ms. Mary Colligan
Assistant Regional Administrator for Protected Resources
National Marine Fisheries Service, Northeast Region
National Oceanic and Atmospheric Administration
55 Great Republic Drive
Gloucester, MA 01930-2298

Dear Ms. Colligan:

In accordance with the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the Environmental Protection Agency (EPA) has reviewed the National Oceanic and Atmospheric Administration's Draft Environmental Impact Statement (DEIS) for Amending the Atlantic Large Whale Take Reduction Plan: Vertical Line Rule (CEQ No. 20130202).

The purpose of the amendment to the Atlantic Large Whale Take Reduction Plan (ALWTRP) regulations is to propose gear set modifications designed to reduce the risk of serious injury and mortality to Atlantic large whales due to incidental interactions with commercial fishing gear along the east coast.

EPA believes that the DEIS provides an adequate discussion of the potential environmental impacts and we have not identified any potential environmental impacts requiring substantive changes. EPA has rated the DEIS as LO – "Lack of Objections." A summary of EPS's rating system is attached.

We appreciate the opportunity to review this DEIS. If you have any questions please contact Jessica Aresta-DaSilva at aresta-dasilva.jessica@epa.gov or 202-564-1567.

Sincerely,

Susan E. Bromm
Director
Office of Federal Activities

September 5, 2013

National Marine Fisheries Service
NOAA Fisheries Service
1315 East West Highway
Silver Spring, MD 20910

RE: Please Protect Right Whales from Slow Death

Thank you for proposing to restrict fishing gear to protect endangered right whales. I support the restrictions you propose, but I oppose exempting large areas in New Hampshire and Maine from having to protect the whales. I also support marking fishing ropes so we know where whales become entangled.

Fewer than 500 endangered North Atlantic right whales remain in a population that numbered in the thousands before commercial whaling. Even though we are not hunting these whales, the heavy ropes in commercial lobster and gillnet fishing still drown or seriously injure them and are a serious threat to their recovery.

Every year right whales, humpback whales, and other endangered whales get tangled in heavy lines used in lobster and other commercial fisheries. Once entangled, they can drown or die slowly from wounds and infection.

Females and young right whales tend to die more frequently. These deaths threaten the species as right whales struggle to grow from a current population of only around 500 whales.

It is important to limit commercial fishing gear in the seasons and areas where right whales gather to feed and to give birth. All coastal states in the northeast and southeast should have the same protections.

It is also important to require that ropes be marked in many different areas so that, if whales still become entangled, we can learn more about where they are at greatest risk.

Thank you for the opportunity to provide input and your help on behalf of whales. It is urgent to require changes in commercial fisheries to reduce deaths of critically endangered North Atlantic right whales.

Yours truly,

J. Capozzelli
315 West 90th Street
New York, NY 10024

CAPE COD COMMERCIAL
FISHERMEN'S ALLIANCE
Small Boats. Big Ideas.

September 16, 2013

Mary Colligan
Assistant Regional Administrator for Protected Resources
NMFS/NERO
55 Great Republic Drive
Gloucester, MA 01930

RE: Proposed Rule for Atlantic Large Whale Take Reduction Plan

Dear Mary,

Thank you for the opportunity to comment on the Proposed Rule for the Atlantic Large Whale Take Reduction Plan (Plan).

The Cape Cod Commercial Fishermen's Alliance (Fishermen's Alliance) represents commercial fishermen of Cape Cod that work towards creative solutions to the issues that affect their fishing businesses. In recent years, the scope of our work has expanded to include fishermen that use not just hooks but gillnets, otter trawls, dredges, harpoons, lobster and conch pots, and other means of harvesting commercially important seafood from the waters off Cape Cod. Some of these fishermen and fisheries are directly impacted by this Proposed Rule, and it is in that capacity we provide this comment.

The Fishermen's Alliance strives to find opportunities where viable fishing businesses can coexist with healthy marine mammal populations. As such, we do not support broad and static fishing closures as the primary means to protect large whales. This tool has traditionally demonstrated an inability to effectively and efficiently evolve and adapt to changing ecological and fishery conditions. De facto permanent fishing closures do not support coexistence and collaboration, and we suggest that they be used only as a last resort. If fishing closures must be implemented, we strongly advocate for the smallest effective option. Furthermore, any proposed fishing closures must be accompanied by a detailed plan for transparent and timely review and revision to maximize their effectiveness at protecting large whales while minimizing negative impacts to commercial fisheries.

While we continue to have concerns regarding the implementation of several proposed options, Alternatives 4 and 5 are particularly troubling. The Fishermen's Alliance opposes the proposed Massachusetts Restricted Area #1 as identified in Alternatives 4 and 5. This broad and sweeping closure encompasses large areas of important commercial fishing grounds that demonstrate minimal co-occurrence with large whales. To that end, the proposed closure area in Nantucket Sound is *not* justified by the co-occurrence model and therefore should not be included in these

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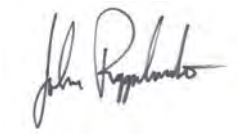
alternatives. Given the lack of co-occurrence and the significant proposed impacts on commercial fisheries, this option simply cannot be justified and should not be chosen.

The Fishermen's Alliance supports better enforcement of and compliance with *existing* regulations before recommending the implementation of additional management measures. Simply put, we should work tighter to identify how to improve enforcement of the current regulations before adding more. To do this effectively, there should be annual comprehensive stock assessments for all large whales and a more timely decision-making process that relies on real-time information.

We favor solutions that promote profitable fishing businesses and healthy marine mammal populations. These include but are not limited to a strong focus on improved education, avoidance techniques, and disentanglement training for commercial fishermen. In attempt to build investment in an outcome-oriented system, the Fishermen's Alliance has worked with the Provincetown Center for Coastal Studies and NOAA to train over 60 Cape Cod fishermen as Level 1 and Level 2 first responders. These fishermen spend hundreds of days on the water every year, and are often the first ones to come across an entangled whale. Through this and additional training programs, they will serve as an effective first line of defense for the protection of large whales.

The Marine Mammal Protection Act has demonstrated success as it continues to rebuild and protect large whale populations. Long term, the Fishermen's Alliance believes that we should all be working towards higher level accountability and to foster industry innovation in this field. To do so, we must all consider changing our approach to these issues and focus on avoidance, individual accountability, disentanglement, and other measures that ultimately improve outcomes for marine mammals and commercial fishermen.

Sincerely,



John Pappalardo, CEO
CCCFA

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION

MARK WILLIAMS
COMMISSIONER

DAN FORSTER
DIRECTOR

September 13, 2013

Mary Colligan
Assistant Regional Administrator for Protected Resources
NMFS Northeast Region
55 Great Republic Dr.
Gloucester, MA 01930

Attn: Large Whale Proposed Rule

Dear Ms. Colligan:

The Georgia Department of Natural Resources' Wildlife Resources Division (GDNR WRD) appreciates the opportunity to comment on the National Marine Fisheries Service's (NMFS) Draft Environmental Impact Statement (EIS) for Amending the Atlantic Large Whale Take Reduction Plan (ALWTRP). By amending the ALWTRP, NMFS seeks to implement a "Vertical Line Rule," thereby reducing entanglements of North Atlantic right, humpback and fin whales in vertical lines (or buoy lines) of commercial trap/pot and gillnet fishing gear. GDNR WRD staff serves on the Atlantic Large Whale Take Reduction Team (ALWTRT) and participated in development of the Vertical Line Rule. As active members of the Atlantic Large Whale Disentanglement Network (ALWDN), our staff has also witnessed firsthand the impacts of chronic fishery entanglements, particularly on endangered right whales. Significant reductions in entanglement-related mortality and injury are needed for the North Atlantic right whale population to recover. As such, we support NMFS's goal of reducing whale entanglements by addressing trap/pot and gillnet vertical lines. With that goal in mind, we respectfully request that NMFS consider the following comments and recommendations while developing the final rule.

Southeast U.S. Waters

We agree with NMFS that Southeast U.S. waters should be managed conservatively to reduce risk of right whale entanglements in trap/pot gear. A higher proportion of right whale cows and calves are present in Southeast U.S. waters than other right whale habitats (Knowlton et al. 1994; North Atlantic Right Whale Consortium, *unpublished data*). Survival of breeding females is the most important factor for right whale population recovery (Fujiwara and Caswell

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2001). Right whale calves weigh as little as one ton (Moore et al. 2004), which may reduce their ability to survive fishing gear entanglements.

We support NMFS's proposal to keep Georgia state ocean waters open to blue crab pot fishing during the right whale calving season (November 15 to April 15). While most blue crab effort occurs in inshore estuarine waters, and is thereby exempted from the ALWTRP, some blue crab fishing effort does occur in ocean waters along the Georgia coast during the calving season. This effort appears to be low and is concentrated in state waters within 3 miles of the shoreline (George 2007). Conversely, numerous modeling studies (Garrison 2007, Good 2008, Keller et al. 2012, Florida Fish and Wildlife Conservation Commission (FWC) *in prep.*) and twenty years of aerial survey data (North Atlantic Right Whale Consortium, *unpublished data*) have shown that right whales are most frequently found in federal waters >3 miles from the Georgia shoreline. Consequently, there is little overlap between right whales and blue crab pots in Georgia state waters—entanglement risk should be low in Georgia state waters accordingly. The same applies to South Carolina state waters.

As it relates to northeast Florida state waters open to blue crab pot fishing during the right whale calving season, we support the NMFS recommendation. Waters along the northeast Florida shoreline are deeper than in Georgia and South Carolina, and are therefore more suitable for right whales (Keller et al. 2012). Aerial surveys and modeling studies (cited above) show that right whales frequently inhabit state waters in northeast Florida. As such, there is greater potential for overlap of whales and fishing gear in Florida state waters than in Georgia or South Carolina state waters. It is unclear whether this overlap translates into an increased risk of whale entanglement. On the one hand, no whale has ever been found entangled in blue crab or other similar pot gear in the Southeast U.S. before (ALWDN, *unpublished data*). On the other hand, increased blue crab fishing effort has been noted in Florida ocean waters recently (FWC, *unpublished data*). To address this potential risk, NMFS has proposed that vertical lines and weak links in Florida state ocean waters would be required to have lower breaking strengths than those required in Georgia and South Carolina waters. This approach seems appropriate given the greater potential for whale/gear co-occurrence in Florida waters

NMFS has proposed that all trap/pot gear fished in federal waters (>3 miles) offshore of Georgia, South Carolina and northeast Florida during the right whale calving season must be brought back to shore at the conclusion of each fishing trip. In so doing, NMFS is proposing a de facto seasonal closure for all trap/pot fisheries in federal waters that require long soak times (e.g., blue crab, stone crab, whelk). Our limited data indicate that blue crab and other trap/pot effort is currently low in federal waters offshore of Georgia (George 2007), so few fishermen would likely be affected by such a de facto closure. We support this proposal because it would

prevent trap/pot effort from emerging in federal waters where whale density is high, thereby ensuring that entanglement risk in the calving habitat remains low into the future.

Mid-Atlantic U.S. Waters

We agree with NMFS that insufficient data currently exist to assess the distribution of right whales in the Mid-Atlantic states (North Carolina to New York). While it is clear that right whales must pass through Mid-Atlantic waters during their migration to and from the Southeast U.S. calving grounds, there is considerable uncertainty about the route they take, or the amount of time they reside in Mid-Atlantic waters (Schick et al. 2009). There is some evidence that right whales may reside and forage in Mid-Atlantic waters throughout the year (Whitt et al. 2013). We recommend that NMFS support efforts to assess right whale distribution in the Mid-Atlantic U.S. using tagging studies, passive acoustic studies, aerial surveys or other appropriate methods. If areas of right whale and fishery co-occurrence are identified, those fisheries should be managed to reduce entanglement risk. Data on right whale distribution would also be valuable for mitigating vessel collisions with right whales in Mid-Atlantic waters (van der Hoop et al. 2012).

Northeast U.S. Waters

The Vertical Line Rule focuses heavily on Northeast U.S. trap/pot fisheries, and in particular, the Gulf of Maine lobster fishery. This focus is appropriate. Johnson et al. (2005) found that lobster gear accounted for 57% of right whale entanglements in cases where gear type could be identified. Moreover, 55% of right whales entangled in trap/pot gear were found to be entangled in trap/pot vertical lines. Other studies have concluded that high whale entanglement rates (83% of right whales have been entangled at least once) have likely been due to a rapid expansion in lobster pot effort in U.S. Gulf of Maine waters since the 1990s (Myers et. al 2007, Knowlton et al. 2012). The U.S. Gulf of Maine lobster pot fishery is severely overcapitalized and fishing effort may have exceeded capacity (Clark 2011). As such, fishing effort could be reduced without significantly impacting lobster catch. Reducing fishing effort would lower fishermen's operating costs and would also reduce right whale entanglement risk (Myers et al. 2007). Unfortunately, the proposed Vertical Line Rule largely sidesteps the issue of effort reduction in the lobster fishery and other Northeast U.S. trap/pot fisheries. It is therefore unclear how effective the proposed rule would actually be at reducing whale entanglements.

We have particular concerns regarding NMFS's strategy to decrease the number of vertical lines by setting minimum numbers of traps fished per lobster trawl (i.e., "trawling-up").

- Many lobster fishermen, especially those fishing in federal waters, are already fishing trawls with the minimum number of traps proposed in this proposed rule (Massachusetts Division of Marine Fisheries 2009). There would be no decrease in vertical lines in such cases. This is especially troubling given that higher densities of whales occur in federal waters.
- There is likely substantial latent effort in the Gulf of Maine lobster fishery. For example, anecdotal evidence suggests that many fishermen purchase their maximum allotment of trap tags per year as a hedge against future effort reduction programs, but fish only a fraction of their total trap tags in practice (Clark 2011). These fishermen would be able to add additional traps to their trawls, without decreasing their total number trawls or vertical lines. The result would be an increase in fishermen's operating cost, more gear in the water, and no reciprocal conservation benefit for whales.
- Increasing the number of traps per trawl would increase the weight and complexity of lobster trawls, which may inadvertently increase the severity of whale entanglements. Given that many lethal whale entanglements likely go undetected (Kraus et al. 2005), our ability to detect increases in lethality from larger trawls would probably be limited.
- Rather than relying on minimum trawl sizes, NMFS should set meaningful vertical line reduction targets and work through the Atlantic States Marine Fisheries Commission and the Lobster Conservation Management Teams to reach those targets. NMFS should also include gillnet and other trap/pot fisheries (e.g., Jonah Crab, whelk) in this process.

The proposed rule does not address data reporting gaps for lobster fishermen fishing in federal waters. NMFS should require federal lobster permit holders to report their landings, gear configuration, area fished and other relevant information. It will be impossible for NMFS to assess the effectiveness of seasonal closures and trawling requirements without these data.

We commend NMFS for its proposal to designate seasonal closures for trap/pot and gillnet gear in Cape Cod Bay, Outer Cape, Great South Channel, Jordan Basin and Jeffreys Ledge. Seasonal closures would reduce co-occurrence of whales and fixed fishing gear, which should reduce risk of whale entanglements. However, as stated above, proper reporting requirements are needed to assess effectiveness of seasonal closures. We are concerned that seasonal closures may trigger a significant relocation of fishing effort, resulting in dense areas of fishing effort immediately adjacent to closed areas. This outcome would negate much of the conservation benefit of seasonal closures. NMFS should expand seasonal closure boundaries if relocation leads to new areas of high whale/fishing gear co-occurrence. Conversely, areas of known low whale/gear co-occurrence should be excluded from seasonal closures. For example, the boundary of "Massachusetts Restricted Area #1" proposed under Alternatives 4 and 5

includes a portion of Nantucket Sound west of Monomoy Island. However, there is no evidence that right, humpback or fin whales inhabit these waters. There is no basis for closing such areas.

Given the concerns regarding trawling-up discussed above, the ALWTRP Draft EIS should include an additional Alternative that assesses the biological and economic impacts of seasonal closures without minimal trawl sizes. This information should be made available for public comment prior to publishing of the Final EIS and Rule.

Coast-wide Gear Marking

We support NMFS's proposal to enhance trap/pot and gillnet gear marking requirements along the Atlantic Coast. We also support NMFS's proposal that trap/pot gear fished in Maine exempted waters should also be marked. Comprehensive, area-specific gear marking requirements are needed to better identify fisheries and locations where whales are becoming entangled. With that goal in mind, we recommend that NMFS require additional two-color marking combinations for trap/pot and gillnet gear in the Gulf of Maine, as is being proposed for Southeast U.S. waters. Doing so would provide more precise information regarding the source of whale entanglements. Given the high levels of whale/gear co-occurrence in the Gulf of Maine, finer-scale gear marking is justifiable and necessary.

We appreciate the opportunity to comment on this proposal, and look forward to continued cooperation with NMFS on this and other matters. If you have questions about the technical content of this letter, please contact Clay George at clay.george@dnr.state.ga.us or at (912) 262-3336.

Sincerely,

Dan Forster

cc: A.G. "Spud" Woodward, CRD

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STATE OF MAINE
DEPARTMENT OF MARINE RESOURCES
21 STATE HOUSE STATION
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PAUL R. LEPAGE
GOVERNOR

PATRICK C. KELIHER
COMMISSIONER

September 16, 2013

Mary Colligan
Assistant Regional Administrator for Protected Resources
NOAA Fisheries Northeast Region
55 Great Republic Drive
Gloucester, MA 01930

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SEP 19 2013
BY:_____

Attn: Large Whale Proposed Rule

Dear Ms. Colligan: Mary,

This letter constitutes the Maine Department of Marine Resources' (DMR, Department) comments on the Proposed Rule *Taking of Marine Mammals Incidental to Commercial Fishing Operations; Atlantic Large Whale Take Reduction Plan Regulations*.

Overall, DMR appreciates that the proposed rule addresses the fundamental concerns expressed by both Maine's fishing industry and Maine's Take Reduction Team (TRT) delegation and recognizes that a one-size-fits-all approach is ineffective. The Department's position is that any new rule must recognize the diversity of the fleet across the region and within the State of Maine, and is operationally feasible, efficient and safe as applied to the various vessel sizes and operations. The Department's positions on the primary points of the proposed rule that would affect Maine's fishing industry are discussed in additional detail below.

Trawling Up

DMR strongly supports the proposed Maine area-specific trawl minimums laid out in the preferred alternative and proposed rule. This proposal was the consensus recommendation of the Maine TRT delegation, is generally supported by industry and is an operationally realistic alternative that achieves over a 37% reduction in co-occurrence. Importantly, this alternative considered local fishing knowledge and resulted in a risk reduction strategy tailored for specific areas/zones and regional fishing practices.

However, industry has expressed great concern regarding trawling up minimums around Maine's many islands, including both those that are populated and those that are not. Historically, the fishing industry typically fishes singles in and around islands due to vessel size, bottom type, rocky edges, depth and for safety reasons. Increasing trawls to a minimum of 2 to 5 traps around islands would not be feasible for most students, seniors or all small boats, for both operational and safety reasons. DMR is proposing a ¼ mile exemption around islands that are partially or fully outside the current exemption line. This proposed exemption would have a positive impact on safety and would be enforceable, while limiting the exempt areas to waters generally less than 30 fathoms and unlikely to impact endangered whales or increase the risk of co-occurrence locally.

Additionally, DMR proposes to limit the increased trawl minimums around islands that constitute state waters, but occur entirely outside of the continuous three mile line, including Mount Desert Rock and Machias Seal Island. Due to the changes in depth and much more extreme bottom type, coupled with the mandatory use of sink-rope, trawling up in these areas is a major safety concern. DMR proposes to keep the current proposed minimum five trap trawl lengths from a time period such as mid-summer through early fall, but to reduce the minimum trawl lengths from a time period such as late fall through early summer annually. This puts the trawl fishing requirements in these offshore state waters in line with the

rest of state waters, while keeping elevated protection measures during the time of year that co-occurrence scores increase in these areas.

Although the proposed rule references the new 6-mile line, it does not define the coordinates for the 6-mile line that is an integral component of the proposed Maine gear modification alternative. DMR suggests that NMFS adopt the 6-mile line coordinates proposed in the State of Maine proposal submitted to NMFS and the TRT in February of 2012. A map and list of coordinates is enclosed for reference.

Area Closures

DMR strongly opposes the proposed Jeffreys Ledge closure and the proposed Jordan Basin closure. While the Department acknowledges the need to implement risk reduction measures in high co-occurrence areas, closures should be used only as a management tool of last resort. DMR has particular concern with the Jeffreys closure, as the collective gear from three states will not be removed from the water, and will only be shifted to dense concentrations closely surrounding the proposed closed area. This would almost certainly result in significant gear conflicts in these and other areas, could potentially increase the co-occurrence scores in alternative areas depending on how gear shifts, and creates an enforcement burden for Maine Marine Patrol.

The closures proposed in both the preferred alternative of the DEIS, and the proposed rule use only sightings or sightings per unit effort of right whales, without taking co-occurrence scores in these areas into account. This is contrary to the agreed upon methodology for targeting regulations. DMR notes that all three proposed closures would only result in a combined additional 2.8-4.8% co-occurrence reduction across the entire Atlantic coast, 1.3-2.5% of which is attributable to Jeffreys closure and 0.2-0.5% attributable to Jordan Basin. The lower ends of these estimate ranges are more likely to be accurate given that fishermen are more likely to relocate their gear than to suspend fishing altogether. Therefore, the endline risk reduction of any closure is likely minimal at best, yet it would impose significant economic penalties on many fishermen from the states of Maine, New Hampshire and Massachusetts. Given that there is no specific target for reduction goals, it remains unclear if an additional 3-5% in co-occurrence reduction would have any impact to the recovery of endangered species, yet would yield a significant burden on the fisheries on which the closures are imposed. NMFS states that "closures are less cost-effective (than minimum trawl length requirements), as evidence by their greater cost per unit reduction in co-occurrence". By point of comparison, the trawl minimum actions result in a cost of $27,351-$88,243 per unit co-occurrence reduction (or a combined 37% reduction at a total cost of $0.5-$3 million), while the closures result in $478,367 -$571,538 per unit co-occurrence reduction (or a 3-5% reduction at a total cost of $1.5-$5.5 million). Additionally, this cost per unit reduction in co-occurrence is spread across a fewer number of boats that are impacted by the closures versus the trawl minimum scenario. NMFS states that approximately 1,406 vessels will be affected by the minimum trawl scenarios. The burden of the closures, however, is spread to just 69 boats in the Jeffreys Ledge closure and only 5 vessels in Jordan Basin. Given the drastic differences in impact with these comparisons, DMR does not support the impact on fisheries provided by closures for such little gain in the reduction of co-occurrence.

Furthermore, DMR objects to the proposed Jordan Basin area's northern boundary crossing into the Area 1/Area 3 lobster management boundary line. There is very low fishing effort in this area and consequently, low risk for entanglements, but the extension of the closure boundary into Area 1 would make enforcement confusing and problematic.

Gear Marking Requirements

DMR opposes any proposed increased gear marking in Area 1 (frequency, level or size). At this point, vertical line marking only informs whale researchers where the endlines were originally deployed, not where the entanglement occurred. Expanding the current single red color scenario for the entire Gulf of Maine will not increase the degree of accuracy needed for analysis to further reduce the risk of entanglements. DMR proposes that consideration of any increased gear marking requirements be suspended until NOAA Fisheries is able to develop more definitive regional scenarios.

DMR strongly opposes the proposed increased gear marking in the Area 1 exemption area. In addition to the above rationale, this measure is operationally unrealistic and cost prohibitive in an area where documented sightings are rare at best. Many of these endlines are solely deployed as limited seasonal effort by students and seniors in very shoal water

above the headlands where whale presence is virtually non-existent. Operationally, Maine's endlines are seasonally fished in a combination of the exempted area, sliver area and federal waters, and imposing a requirement with completely different marking patterns will require industry to swap endlines as they routinely shift their gear in-between all the different fishing areas. Furthermore, the coupling of Maine and the proposed New Hampshire exemptions will provide no definitive data. In sum, this is a cost prohibitive and operationally unrealistic measure with no benefit to the Take Reduction Plan goals.

Implementation Date

DMR proposes that the Take Reduction Plan implementation date be no earlier than June 1, 2015. An effective date of Fall 2014, as the proposed rule lays out would be in the middle of the fishing season, and would be disruptive financially and impractical operationally. Gear reconfigurations can be costly and are time consuming; every effort should be made to align the implementation of new requirements with the existing operations of the industry. An implementation date of June 1, 2015 would be consistent with the annual trap tag requirement date and an operationally realistic timeline for industry to comply with future rules associated with the ALWTRP.

Application of Proposed Rule to Pocket Waters

Finally, DMR proposes that industry maintain existing fishing practices inside the four "Pocket Waters" described in federal law (though DMR notes that the coordinates are inaccurate in both 16 USC 5701 and 50 CFR 697.24 and furthermore do not match). Allowing industry to maintain fishing pairs, rather than triples will be operationally practical for both industry and enforcement. Furthermore, in only one place does the co-occurrence score near any of the pocket waters exceed a value of 1. This occurs only in the month of July at the head of the Penobscot Bay pocket water, with the majority of the affected area located outside of the boundary. The coordinates for the four areas (as provided by NOAA Fisheries Office of Law Enforcement staff to DMR) are as follows:

(1) west of Monhegan Island in the area north of the line 43 degrees 42' 10.0"N, 69 degrees 34' 16.0"W and 43 degrees 42' 15.0"N, 69 degrees 19' 18.0"W;
(2) east of Monhegan Island in the area located north of the line 43 degrees 44' 0.0"N, 69 degrees 15' 05.0"W and 43 degrees 48' 10.0"N, 69 degrees 08' 01.0"W;
(3) south of Vinalhaven Island in the area located west of the line 43 degrees 52' 18.5"N, 68 degrees 40' 0.0"W, and 43 degrees 58' 10.5"N, 68 degrees 32' 57.0"W;
(4) south of Bois Bubert Island in the area located northwest of the line 44 degrees 19' 16.5"N, 67 degrees 49' 30.0" W, and 44 degrees 23' 40.0"N and 67 degrees 40' 30.0"W.

Enclosed are the charts of the current proposal with the four pocket water areas identified.

In conclusion, the State of Maine appreciates NOAA Fisheries' consideration of the comments and concerns submitted by DMR, as well as Maine fishermen and industry associations, in the development of the final Atlantic Large Whale Take Reduction Plan rule. DMR remains committed to working with NOAA Fisheries and within the Take Reduction Team process to reduce the risk of entanglements that may result in serious injury and/or mortality to endangered large whales.

Please feel free to contact me with any questions.

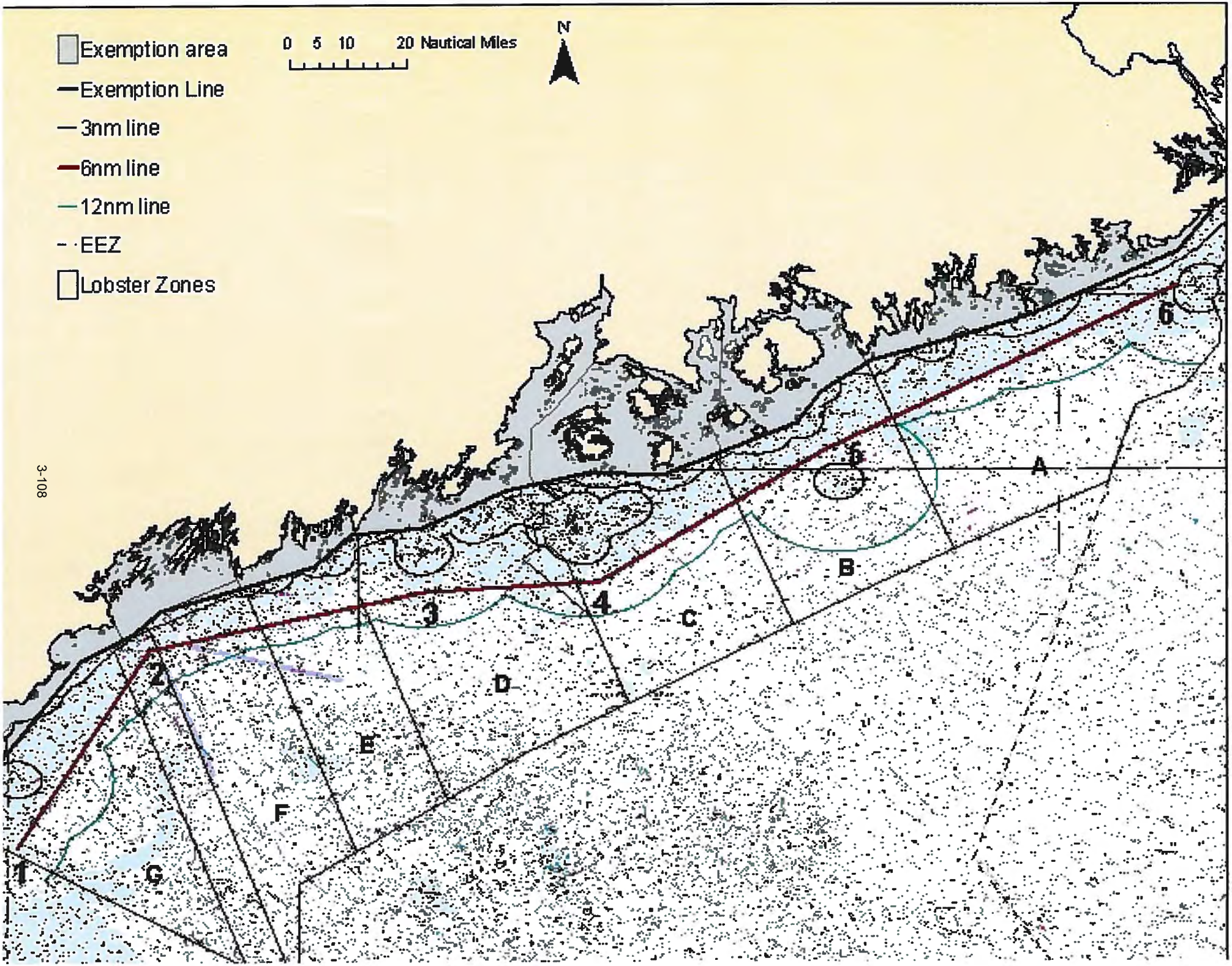
Sincerely,

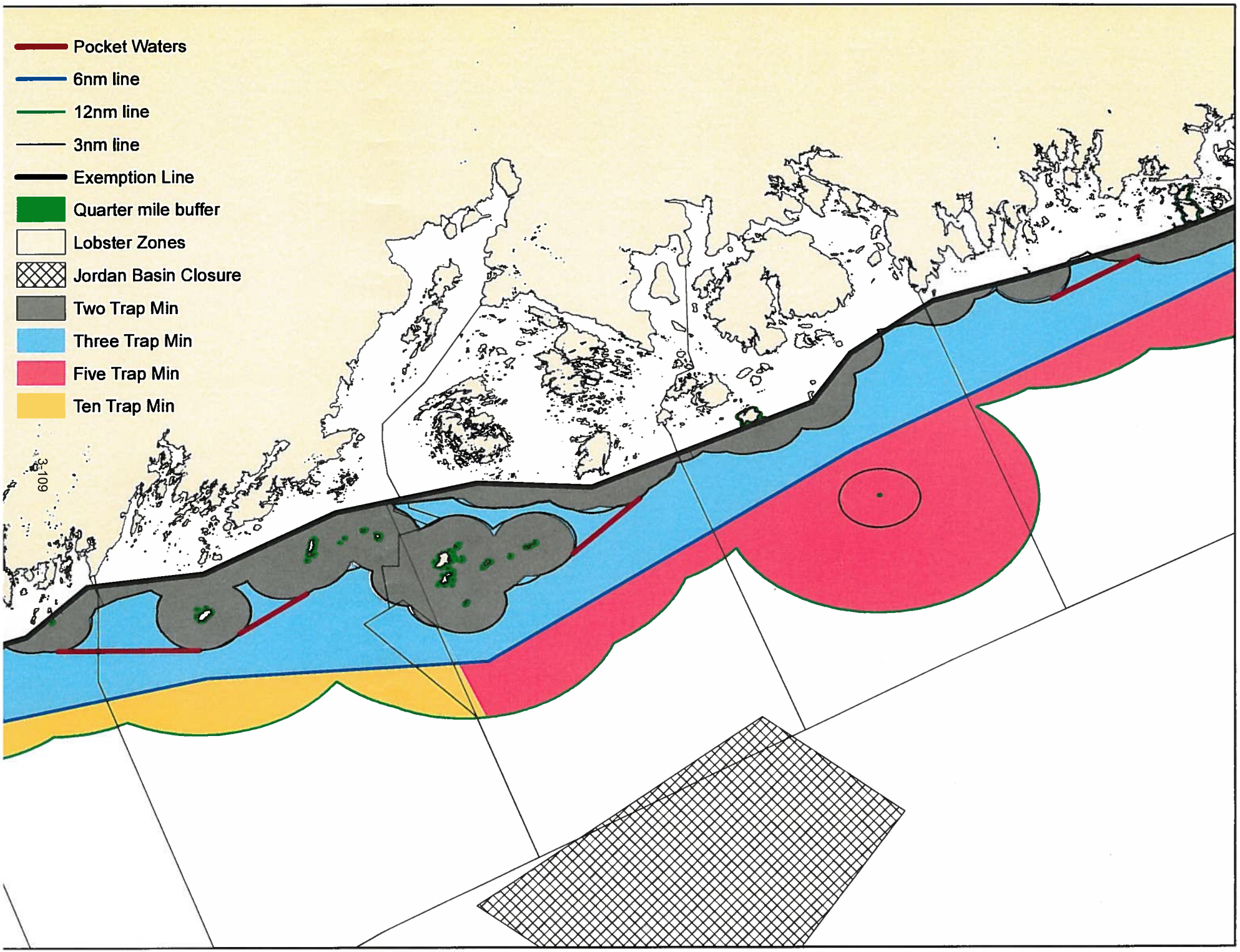
Patrick C. Keliher
Commissioner

Enclosures

Enclosure: Maine Department of Marine Resources , Proposed 6 mile line coordinates.

	Point	Decimal Lat	Decimal Long	DMS Lat	DMS Long
1	Isle of Shoals	42.923	-70.478	42 55' 22.8"	-70 28' 40.8"
2	Casco Bay	43.519	-70.126	43 29' 24"	-70 5' 52.8"
3	Monhegan	43.654	-69.309	43 39' 14.4"	-69 18' 32.4"
4	Matinicus	43.683	-68.814	43 40' 58.8"	-68 48' 50.4"
5	Mount Desert Island	44.057	-68.171	44 3' 25.2"	-68 10' 15.6"
6	Machias Seal	44.533	-67.162	44 31' 58.8"	-67 9' 43.2"


Exemption area
Exemption Line
3nm line
6nm line
12nm line
EEZ
Lobster Zones
0 5 10 20 Nautical Miles
N
1
2
3
4
5
6
A
B
C
D
E
F
G


Pocket Waters
6nm line
12nm line
3nm line
Exemption Line
Quarter mile buffer
Lobster Zones
Jordan Basin Closure
Two Trap Min
Three Trap Min
Five Trap Min
Ten Trap Min
3109

Sea View Lobster Corporation
252 Washington Rd.
Rye, N.H. 03870
603-431-8174

RECEIVED
SEP 16 2013
BY:_____

9-12-13

MICHAEL FLANIGAN – AGE 71 YEARS OLD
252 WASHINGTON ROAD
RYE, N.H 03870

SELF EMPLOYED OWNER – CAPTAIN FOR 58 YEARS
HAVE OWNED BOTH INSHORE + OFFSHORE BOATS
FISHED INSHORE + OFFSHORE SINCE I WAS 13 YEARS OLD.

TO WHOM IT MAY CONCERN,

I ATTENDED THE WHALE TAKE REDUCTION PLAN MEETING IN PORTSMOUTH. N.H ON AUG 20TH, 2013 AND SPOKE THERE.

THESE ARE MY COMMENTS ON THE PROPOSED PLANS,

1. I SUPPORT MAKING N.H STATE WATERS EXEMPT FROM THESE PLANS.

2. I SUPPORT MAKING ALL LOBSTER POT TRAWLS OUTSIDE OF 3 MILES 20 POT TRAWLS.

3. I DO NOT SUPPORT MAKING SPLICES ON END LINES ILLEGAL. IT IS IMPOSSIBLE TO MAKE BUOY LINES WITH OUT SPLICES

4. I DO SUPPORT THE USE OF WEAK LINKS AND END LINE MARKING IN N.H STATE WATERS

5. I DO SUPPORT POTTING 3 MARKS ON THE END LINES BUT I THINK 12" EACH IS TOO LONG. I USE RED TAPE + IT WORKS VERY WELL WITH 4" MARKS.

Sea View Lobster Corporation
252 Washington Rd.
Rye, N.H. 03870
603-431-8174

6. I AM VERY MUCH OPPOSED TO THE "JEFFRIES LEDGE CLOSURE"
I FISH THERE YEAR ROUND AND HAVE NEVER SEEN OR
ENTANGLED A WHALE OF ANY TYPE.
I FEEL THAT THE WAY WE HAVE RIGGED THE GEARIS
PROPER AND IT IS WORKING VERY WELL.
CLOSING THIS AREA WOULD DISPLACE ALOT OF BOATS AND
FORCE PEOPLE OUT OF BUSINESS

THANK YOU VERY MUCH,

MICHAEL FLANIGAN

IF YOU HAVE ANY QUESTIONS PLEASE CALL

South Carolina Department of
Natural Resources

Alvin A. Taylor
Director
Robert H. Boyles
Deputy Director for
Marine Resources

September 13, 2013

Ms. Mary Colligan
Assistant Regional Administrator for Protected Resources
NMFS Northeast Region
55 Great Republic Drive
Gloucester, MA 01930

Re: Comments on NOAA-NMFS-2013-0095; Taking of Marine Mammals Incidental to Commercial Fishing Operations; Atlantic Large Whale Take Reduction Plan (ALWTRP) Regulations

Dear Ms. Colligan,

The South Carolina Department of Natural Resources (DNR) is very supportive of NOAA-NMFS efforts to reduce fisheries related incidental mortality or injury to Atlantic large whale and other marine mammal populations along the Atlantic Coast and appreciates the opportunity to comment on this proposed rule.

Based on the findings of the Atlantic Large Whale Take Reduction Team (ALWTRT) over the past several years, it has been determined that the primary vertical line dependent commercial fisheries of interest for possible interaction with whales in state and federal waters of the Atlantic Ocean off South Carolina are the trap/pot fisheries for blue crab and black sea bass. While it can be argued that both of these fisheries present some level of risk to whales simply because they employ vertical lines in waters where whales might occur, given the current practices and magnitude of both fisheries, as well as the specific geographic and hydrographic features of our coastline and shelf, it is hard to imagine that either fishery presents any actual measurable risk to the safety of large whales, especially when compared to fisheries in other Atlantic coastal states, particularly those in the Northeast. It is important to note that while the relative co-occurrence of vertical lines and whales is being used as a proxy for risk, the gear currently utilized in both of these fisheries is extremely simple and light-weight and should therefore have almost no chance at all of injuring either adult or juvenile whales should they come into contact with a crab or sea bass trap/pot line.

The black sea bass commercial pot fishery operating from South Carolina is currently limited to nine federally permitted/endorsed individuals, only a few of whom are actually active given the management restrictions placed on the fishery during the recently completed stock rebuilding period. Reported landings from this fishery are almost entirely from offshore federal waters where fishermen are restricted to no more than 35 single traps each, which are regularly tended and brought ashore at the end of each fishing trip. Current management measures being developed would restrict this fishery from operating in federal waters from 15 November through 15 April each year, but if the fishery were allowed to expand back into this time period it is very hard to imagine how this limited amount of light

weight gear configured in accordance with the recommendations of the ALWTRT would have any measurable risk to the safety of whales transiting our coastal waters.

South Carolina's blue crab trap fishery occurs predominately in state waters, well inside our estuaries. Based on commercial landings reports, the vast majority of our commercial crab fishermen do not venture into the ocean at all. However, in years when coastal water temperatures may be cooler than normal and crabs move farther out of the estuaries and into near shore waters in larger numbers, a relatively small number of crab fishermen with larger boats may set traps in the ocean in both state and federal waters. When this happens it is typically during the months of January through March, and the gear is usually soaked for multiple days in the vicinity of the 50 degree F isotherm, whether it is in state of federal waters. While this seasonal fishing activity may not represent the bulk of the landings from the state's commercial blue crab fishery it is never-the-less a significant financial boost and extremely important to the relatively few fishermen who can participate in this aspect of the fishery.

From comments received from commercial fishermen at the 12 September NOAA-NMFS public hearing in Charleston, SC it was made clear that at least two of the proposed changes to the ALWTRP would cause significant operational and economic hardship to the few crabbers who do occasionally work during winter months in the Atlantic Ocean off South Carolina. Of particular concern is the requirement to remove all traps at the end of the fishing day. Crab traps are not fished in the same manner as black sea bass traps, with the soak time typically being a matter of days rather than hours. Given the relatively small size of the boats used by commercial crabbers a limited number of traps may be safely shuttled out and back each day. Overnight trips are not attempted. The requirement to return all traps to shore at the end of the day would greatly hamper the efficiency and cost effectiveness of any fishermen attempting to harvest crabs in the ocean and could result in additional safety-related issues. Their assessment is that "this requirement would shut them down."

The adoption of specific color coding for fishing trap/pot lines deployed in state or federal waters is very problematic for commercial crab fishermen who might need to fish in both areas, as blue crabs could easily be located on both sides of the state/federal waters interface on the same day. Having to maintain duplicate gear and change out lines to comply with the requirement for state or federal color coding would add significant expense and become a nightmare to try to manage on a daily basis. Perhaps a simple solution for tracking the lines of the blue crab trap fishery would be to slightly modify the proposed line marking color scheme in such a way that fishermen who fish predominately in state waters, but occasionally or simultaneously fish in federal waters could be tracked regardless of where they are. This could be accomplished by adding a white band to the recommended color pattern of blue and orange for traps deployed in state waters and allowing crab fishermen to use this color scheme regardless of the location of their traps. This approach would have the advantage of reducing financial and operational burdens on the fishermen, and in the event of an actual entanglement with a whale, more readily identify the specific fishery as the source of the incident.

P.O. Box 12559 • Charleston, S.C. 29422-2559 • Telephone: 843-953-9300
EQUAL OPPORTUNITY AGENCY PRINTED ON RECYCLED PAPER

Again, we are extremely supportive of any meaningful effort to reduce the incidental mortality or injury to Atlantic large whales and other marine mammal populations along the Atlantic Coast in our commercial trap/pot fisheries and greatly appreciate the dedication and hard work of the ALWTRT and all others involved in this effort. We certainly understand the magnitude and importance of this endeavor and are willing to do our part to help. Given the very limited scope of these fisheries in the waters of the Atlantic Ocean off South Carolina, especially compared to other regions along the coast where problems from much larger fisheries and more significant gear are well documented, the potential consequences of all of the proposed changes to the ALWTRP seem to have a disproportionate level of impact on South Carolina commercial fishermen, especially given the less likely possibility of any meaningful gain in protection of these important animals in our waters. If fully implemented these changes would minimize or completely exclude these South Carolina commercial fishermen from previously important, time-specific markets within their fisheries.

Thank for the opportunity to comment. If you have any questions or need any additional information please feel free to contact me any time.

Sincerely,

Melvin Bell

Melvin Bell
Director,
Office of Fisheries Management

cc: Robert Boyles, SCDNR
David Whitaker, SCDNR

MARINE MAMMAL COMMISSION

13 September 2013

RECEIVED
SEP 2013
BY:

Ms. Mary Colligan
Assistant Regional Administrator for Protected Resources
National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 09130
Attn: Large Whale Proposed rule

Dear Ms. Colligan:

The Marine Mammal Commission (the MMC), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the proposed rule published by the National Marine Fisheries Service (NMFS) to amend the Atlantic Large Whale Take Reduction Plan (78 Fed. Reg. 42654) and the associated draft environmental impact statement (the DEIS). The purpose of the proposed rule is to reduce the entanglement of North Atlantic right whales and other large whales in commercial trap/pot and gillnet fishing gear.

The Commission's support for the proposed regulatory measures is tempered by major concerns over the basis of NMFS's evaluation of alternative actions in the DEIS, particularly the use of the co-occurrence model recommended by the Atlantic Large Whale Take Reduction Team (the ALWTRT). The model's purpose is to assess the probability of whales encountering vertical fishing lines; however, given structural limitations of the model, deficiencies in the data used, and the omission of data for some areas where entanglement could occur, the model does not provide reliable estimates of entanglement risk and therefore overestimates the effectiveness of proposed measures in achieving potential biological removal (PBR) levels. The Commission also has concerns over the portrayal of the ALWTRT process and decisions in the DEIS.

RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service—

- adopt the proposed per trawl trap minimums in the 25 management areas identified in the proposed rule;
- expand the discussion of weak links in the final environmental impact statement (FEIS) to include the evidence that exists, if any, to indicate that weak links (1) have prevented entanglements; (2) have shortened the amount of time a whale is entangled or otherwise reduced the likelihood that an entangled whale will be seriously injured or die; (3) have failed to prevented entanglements; and (4) may be counterproductive in helping whales shed gear;
- identify in the FEIS the steps that will be taken to ensure adequate inspection and enforcement of the new minimum trap number provision;
- include in the final rule a requirement that all trap/pot fishermen permitted to fish in federal waters record and submit data on the location, number, and length of time that endlines are

deployed as part of required vessel trip reports and describe in the FEIS precisely what data on endlines (e.g., number, location, and length) NMFS expects state fishery agencies to provide to it on fishing activities that occur under state permits to evaluate compliance and rule effectiveness;

- include in the final rule a prohibition on gillnet use during all times and in all areas proposed for trap and pot closures (i.e., the Jordan Basin, Jeffreys Ledge, Great South Channel (GSC), and Massachusetts Restricted Areas) as well as the "sliver" management area within the GSC Restricted Gillnet Area right whale critical habitat that is currently excluded in the proposed rule;
- revise the analyses in the DEIS to identify the criteria being used to determine when economic costs of the seasonal fishing closures outweigh conservation benefits to large whales;
- expand the DEIS to provide data on recent levels of fishing effort and economic impacts for proposed and alternative closures—those data should include the number of affected trap/pot and gillnet fishermen, the amount of gear set, and the volume and gross or net revenues of ex-vessel landings;
- adopt the proposed gear marking measures after amending them to (1) increase the number of marks required on buoy lines for traps and pots set deeper than a certain depth (e.g., 600 ft); (2) clarify that all trap, pot, and gillnet fisheries subject to the rule are required to mark their vertical buoy lines regardless of where they fish along the east coast; (3) expand the marking scheme to include additional fishing areas where a unique mark is required (i.e., gillnets set in New England waters south and east of Cape Cod and for all traps and pots set in Lobster Management Area 1 off New Hampshire and Massachusetts); and (4) require all groundlines to be marked by a distinct color or other distinctive mark in areas where sinking groundlines are now required.
- take immediate steps after the final rule has been adopted either to revise the current co-occurrence model or develop a new, more suitable model capable of estimating the extent to which the co-occurrence between whales and fishing gear would be reduced, together with the uncertainty of the estimate;
- include in the FEIS a discussion of the full range of ALWTRT and peer reviewer comments regarding the limitations of the model;
- before preparing the FEIS, conduct a study to validate the co-occurrence model relied on in the DEIS against the results of the alternative co-occurrence model at least for Lobster Management Area 1 and, based on those results, modify the model and recalculate co-occurrence estimates; and
- include in the preamble to the final rule and in the FEIS a discussion that more accurately reflects decisions reached by the ALWTRT, particularly with respect to the original deferral of rulemaking to prevent vertical line entanglement risks, and that makes clear that such a deferral was not recommended by the Take Reduction Team.

RATIONALE

In the proposed rule, NMFS seeks to reduce entanglement risks to large whales from vertical lines by (1) reducing the number of vertical lines deployed in the water column by grouping more traps and pots on fewer lines and (2) prohibiting traps and gillnets in seasons and areas where whales, primarily right whales, aggregate in the greatest numbers. The MMC agrees that such

measures are appropriate and important to reducing large whale entanglements, and generally supports the proposed measures to limit the number of lines in the water column. The proposed rule also continues the requirement for weak links between the buoy line and the buoy and specifies required breaking strengths for the links. Unfortunately, despite considerable research on how to make fishing gear less likely to entangle large whales, no effective measures have been developed and there is no evidence that regulatory requirements for such gear modifications, including the use of weak links, have reduced serious injuries or deaths of whales from entanglements in fishing gear.

The best means presently available to reduce fishery-related deaths of large whales is to prevent entanglements from occurring in the first place. The most efficient means to accomplish this, which affects the fewest fishermen and has the least impact on overall fishing effort, is through seasonal closures that prohibit the use of traps, pots, and gillnets with lines that might entangle whales in designated critical habitats and in other areas and times when whale numbers are predictably high. These seasonal area closures are discussed below. The MMC recognizes, however, that such closures alone will not be adequate to reduce entanglement-related serious injuries and deaths to required levels and additional measures such as reducing the overall number of endlines in all areas of co-occurrence will be needed.

Area-specific gear requirements

The proposed rule includes a series of area-specific gear modifications for both trap/pot and gillnet fisheries. The traps and pots portion of the rule (section (c)(2)) identifies 25 different management areas and specifies the minimum number of traps required per trawl (from 1 to 20) in each. The 25 management areas include all open-ocean waters within the U.S. exclusive economic zone other than waters in exempted areas off Maine and New Hampshire. The purpose of minimum trap numbers is to require fishermen to group traps together into fewer strings, thus reducing the overall number of vertical endlines in the water in areas not closed to the use of trap, pot and gillnet gear and the probability of large whale entanglements. The MMC considers this approach to entanglement reduction to be sound and therefore, the MMC recommends that NMFS adopt the proposed per trawl trap minimums in the 25 management areas identified in the proposed rule.

Technological modifications–Weak links

All alternatives in the DEIS propose the use of weak links with breaking strengths ranging from 200 to 2,000 pounds. Weak links have been the primary measure used to prevent or mitigate whale entanglements in buoy lines since 1999, yet the DEIS (page 5-12) provides no data regarding their effectiveness in the years since they have been required. On the contrary, numerous instances have been documented of both broken and unbroken weak links being removed from entangled whales that have been seriously injured or killed by the entanglement, calling into question the benefit of weak links, and these data should be presented. It is possible that weak links are counterproductive for helping whales rid themselves of lines. Disentanglement teams routinely tie buoys and telemetry tags to lines trailing from entangled whales and often have observed that the increased drag has served to pull those lines free from the whales. Thus, one of the intended secondary purposes of weak links, to reduce the weight of gear on entangled whales, might also make it less likely that gear will be shed, at least in some cases. In light of the need to evaluate the effectiveness of weak links, the MMC recommends that NMFS expand the discussion of weak links in the FEIS to include the evidence that exists, if any, to indicate that weak links (1) have prevented

entanglements; (2) have shortened the amount of time a whale is entangled or otherwise reduced the likelihood that an entangled whale will be seriously injured or die; (3) have failed to prevent entanglements; and (4) may be counterproductive in helping whales shed gear.

Enforcement and monitoring

While the MMC supports the proposed per trawl trap minimums, it is concerned that, with some 250,000 endlines in the water in the regulated areas and no way to determine from the surface how many traps are on a trawl, it is likely to be very difficult to enforce this provision. Neither the proposed rule nor the DEIS provides information on monitoring or enforcement difficulties or on how these will be overcome. Therefore, the MMC recommends that NMFS identify in the FEIS the steps that will be taken to ensure adequate inspection and enforcement of the new minimum trap number provision.

The lack of historical and current data on the number of endlines deployed by trap/pot fisheries has hindered robust modeling of the co-occurrence of fishing gear and large whales and the estimation of the effectiveness of any proposed management actions. Except in the case of the Massachusetts lobster fishery, fishermen have not been required to record or report the number of endlines they actually use. To assess the effectiveness of the rule in reducing vertical line numbers, assist with compliance, and inform future co-occurrence modeling, it is essential that accurate data be collected on the number of endlines in the water. The DEIS offers no indication as to whether such data will be gathered. At a minimum, NMFS should ensure that such data are collected by all fishermen who are required to obtain permits to fish in federal waters where NMFS has jurisdiction. To assure necessary data are collected, the MMC recommends that NMFS (1) include in the final rule a requirement that all trap/pot fishermen permitted to fish in federal waters record and submit data on the location, number, and length of time that endlines are deployed as part of required vessel trip reports, and (2) describe in the FEIS precisely what data on endlines (e.g., number, location, and length) NMFS expects state fishery agencies to provide to them on fishing activities that occur under state permits to evaluate compliance and rule effectiveness.

Seasonal area closures

As part of proposed area-specific gear requirements, the proposed rule includes provisions for six seasonal closures to protect whales in high-use right whale habitat. Those include: (1) a new area in the Jordan Basin in the central Gulf of Maine from November through January to exclude traps and pots but not gillnets, (2) a new area around Jeffreys Ledge off New Hampshire and southern Maine from October through January to exclude traps and pots but not gillnets, (3) expansion of an existing January-April closure in the Cape Cod Bay critical habitat for right whales to include adjacent waters and to exclude traps and pots but not gillnets (i.e., the Massachusetts Restricted Trap/Pot Area), (4) an existing closure in the Cape Cod Bay critical habitat from January through April to exclude gillnets only, (5) an existing April-June closure in the Great South Channel (GSC) critical habitat for right whales to exclude traps and pots (i.e., the GSC Restricted Trap/Pot Area), and (6) an existing closure in those parts of the GSC critical habitat that do not include the "sliver" area along the southwestern edge of the GSC critical habitat from April through June to exclude gillnets (i.e., the GSC Restricted Gillnet Area). As discussed below, the MMC questions the analysis in the DEIS for rejecting the option of excluding gillnets from the "sliver" area in spring and believes that area should be closed over the same period as the rest of the GSC critical habitat.

The Commission supports the proposed rule's provisions for new and existing seasonal closures but is concerned that they contain no restrictions on gillnet gear beyond those already in place. Therefore, the proposed rule's provisions are insufficient to achieve the take reduction goals of the Marine Mammal Protection Act (MMPA). Although vertical buoy lines on gillnets pose entanglement risks similar to those on trap/pot gear, the gillnets themselves pose an even greater entanglement risk for large whales. As discussed below, the use of weak links is the primary measure for preventing and mitigating gillnet entanglements, but they have not proven to be adequate; further measures are needed. As with trap/pot fisheries, the most effective way to prevent gillnet entanglements is to prohibit the use of gillnets in right whale critical habitat and in other areas frequently inhabited or visited by right whales during periods of their peak occurrence. Therefore, the MMC recommends that NMFS include in the final rule a prohibition on gillnet use during all times and in all areas proposed for trap and pot closures (i.e., the Jordan Basin, Jeffreys Ledge, GSC, and Massachusetts Restricted Areas), as well as the "sliver" management area within the GSC right whale critical habitat that is currently excluded in the proposed rule.

In general, the boundaries and timeframes for proposed and alternative closures discussed in the DEIS are supported by available information on right whale distribution and seasonal occurrence. On the other hand, the DEIS provides no data on either fishing effort (e.g., numbers of affected trap/pot and gillnet fishermen or numbers of traps/pots and gillnets) or the economic value (e.g., ex-vessel landings, gross or net revenues) of fishing in any of the alternative closure zones during the seasons of peak whale occurrence. Thus the NMFS analysis of economic impacts against conservation benefits of proposed closures is not transparent. In some instances, the proposed prohibitions are inconsistent with the information provided. In others, NMFS seems to have come to opposite conclusions under what appear to be very similar circumstances, but supporting data, whether biological or socio-economic, is not presented.

For example, the DEIS provides no data to justify NMFS's decision to reject the option of prohibiting gillnets from the "sliver" area in the GSC right whale critical habitat. The Service rejects this option on the grounds that there is little fishing effort there and the economic burdens would outweigh the whale protection benefits. However, if there is little fishing effort in that area during spring, it does not follow that there would be substantial economic cost to the industry from a closure. In contrast, NMFS proposes to establish a trap and pot closure in right whale critical habitat in Cape Cod Bay and surrounding waters where low levels of lobster fishing occur. Although not stated explicitly, NMFS appears to have concluded that economic burdens on lobster fishing in that area do not outweigh protection benefits to whales, but again data are not provided on affected fishing effort or economic value. These two areas have similar levels of co-occurrence of whales and gear. Therefore, by proposing to close one area where fishing effort is low while leaving another area with similarly low fishing effort open, and in the absence of supporting data, NMFS's decisions on these closures appear arbitrary and contradictory.

With regard to the rejected alternative of closing the "sliver" area to gillnets, the co-occurrence model used by NMFS indicates that co-occurrence and entanglement risks are high and comparable to those in other areas proposed for seasonal closures. In the timeframe over which vertical line data used in the co-occurrence model were collected (i.e., since 2008), lobster gear has been prohibited in the "sliver" area during the spring right whale season. As a result, the model should assess only gillnet gear for that area and time. Results of the model as presented in Appendix

5-B indicate that the "sliver" area has a relatively high co-occurrence score, which must be due to gillnets. Nevertheless, NMFS rejected a spring ban ostensibly because, even though there is little gillnet fishing effort in that area at that time, the economic burden somehow outweighs protection needs. These apparent inconsistencies need to be reconciled or explained.

The analyses in the DEIS and the decision to exclude certain areas or gear types from proposed closures give the impression that NMFS is placing the economic interests of a relatively small number of fishermen above right whale protection needs even though there are apparently minimal economic impacts. The MMC recommends that NMFS revise the analyses in the DEIS to identify the criteria being used to determine when economic costs of the seasonal fishing closures outweigh conservation benefits to large whales. The MMC also recommends that NMFS expand the DEIS to provide data on recent levels of fishing effort and economic impacts for proposed and alternative closures—those data should include the number of affected trap/pot and gillnet fishermen, the amount of gear set, and the volume and gross or net revenues of ex-vessel landings.

Gear marking

NMFS proposes to include requirements for marking buoy lines to help identify the source of lines found on entangled whales and to monitor the take reduction plan's effectiveness. To help gather such information, the rule would require placing three 12-inch marks at the top, middle, and bottom of each buoy line with different colors or color combinations to distinguish buoy lines from trap/pot and gillnet fisheries and to identify broad geographic areas where the gear was set. Such a system is important and the proposed marking system, particularly the increased size of marks (which will make them easier to detect on entangled whales that cannot be disentangled) and the expanded coverage of areas and fisheries, is a significant improvement over the previous gear marking system. However, as discussed further in the Addendum to this letter, the proposed gear marking system should be clarified and strengthened in four ways and, therefore the MMC recommends that NMFS adopt the proposed gear marking measures after amending them to (1) increase the number of marks required on buoy lines for traps and pots set deeper than a certain depth (e.g., 600 ft); (2) clarify that all trap, pot, and gillnet fisheries subject to the rule are required to mark their vertical buoy lines regardless of where they fish along the east coast; (3) expand the marking scheme to include additional fishing areas where a unique mark is required (i.e., gillnets set in New England waters south and east of Cape Cod and for all traps and pots set in Lobster Management Area 1 off New Hampshire and Massachusetts); and (4) require all groundlines to be marked by a distinct color or other distinctive mark in areas where sinking groundlines are now required.

Co-occurrence model

NMFS's evaluation of alternative approaches to reducing vertical lines in large whale habitat is based on a co-occurrence model recommended by the ALWTRT and developed by a NMFS contractor. The model's purpose is to assess the probability of whales encountering fishing lines. It is based on monthly estimates of the numbers of lines in the water and data on the density of whales in all areas of the U.S. exclusive economic zone from Maine to Florida. The MMC supported the development of such a model and continues to believe such modeling is needed to help monitor implementation of line reduction measures and evaluate their effectiveness. Despite the model's importance, however, the process of developing it, the nature of the resultant model, and

uncertainties surrounding the data used as input have raised serious doubts about the model's usefulness.

As reflected in the ALWTRT summary reports, the following concerns described below have been discussed extensively by the ALWTRT, and they also are described in peer reviews and a report prepared by scientists on the ALWTRT.[1] Among the important concerns raised by ALWTRT members and peer reviewers were the following:

- Managers need the means to evaluate whether management approaches are effective in achieving reductions in vertical line numbers and whale co-occurrence with gear, but the co-occurrence model that was developed is not sufficient to estimate absolute entanglement risk. Instead, it is useful only for determining the relative effectiveness of one mitigation measure against another (although it does not provide any way to assess the significance of such differences). Since the model does not consider exempted waters, it does not determine the overall co-occurrence risk. Finally, there is no standard or goal identified for determining the extent to which vertical lines must be reduced to achieve the goals of the MMPA—i.e., reducing entanglement-related serious injury and death of large whales to below PBR levels within six months of plan implementation and to insignificant levels approaching a zero mortality rate within five years.

- The model fails to account for uncertainty in the underlying data. The data on numbers of whale sightings are treated as known values, rather than as observations resulting from stochastic processes. The data on vertical line numbers are treated as known values, when in fact they are estimates with some amount of uncertainty. With the exception of nearshore waters off Massachusetts where fishermen were asked to record data on the number of trawls and traps per trawl set, the estimates of vertical line numbers for all other areas are based on either surveys in which fishermen provided their recollection of how many traps and trawls they set in different areas during the previous month or year or on the "expert opinion" of state fishery managers as to the number of traps per trawl set by fishermen in different areas. Given those methods, there is great uncertainty regarding the actual number of vertical lines deployed in different areas. The lack of effort to validate the accuracy of the estimates of vertical line numbers undermines the reliability of the baseline data and greatly reduces confidence in the model-generated projections of the effectiveness of proposed measures to reduce vertical line numbers and co-occurrence risks.

- Further, the model underestimates entanglement risk by failing to account for several important factors related to the distribution of whales and vertical lines. It assumes that whales do not occur in areas where surveys have not been conducted, even though telemetry, opportunistic sightings, and some entanglement data document at least occasional occurrence of right whales and other large whales during seasons and in areas that have not been surveyed. In addition, it provides no estimate of co-occurrence in areas exempted from vertical line restrictions, such as the coast of Maine. The risk of entanglement could be very high for any whales entering exempted areas in Maine and New Hampshire, given the high gear density therein, but NMFS

[1] Estimating Minimum SPUE Values for Right and Humpback Whales in Northeast Areas with Low Survey Effort: An Analysis Completed for the Atlantic Large Whale Take Reduction Team. 31 January 2012. Robert D. Kenney, Ph.D.

has done little to assess whale occurrence in those exempted areas or to factor this into overall assessment of co-occurrence and entanglement risk.

These limitations and deficiencies have been noted by peer reviewers, ALWTRT members, and the modeling contractors themselves. Failure to address them significantly reduces confidence in the use of the model as a tool for evaluating management options. The description of the model in the DEIS acknowledges that fundamental limitations remain, yet both the proposed rule and the DEIS incorrectly imply that the ALWTRT and peer reviewers largely endorsed the model. For example, NMFS states in the DEIS that although peer reviewers "noted the need to clarify some aspects of the model's documentation, the findings of the review overall were favorable." In fact, reviewers noted that the data on vertical lines are inadequate, the results have no confidence limits associated with those estimates, and no steps have been taken to validate the performance of the model through comparison with other modeling efforts. Indeed, one reviewer stated that "other model approaches might have been preferable and [that] this version of [the] model is not ready to be used in a management application until its performance has been validated or compared with other model approaches." The MMC agrees with that conclusion.

Given the fundamental limitations of the model as it now exists, which are discussed further in the Addendum to this letter, as well as the ongoing need for a model to help monitor and evaluate the effectiveness of the final rule, the MMC concludes that the model must be substantially revised or replaced with a model more capable of assessing uncertainty in the underlying data and evaluating overall co-occurrence risks (including risks in exempted areas). Therefore, the MMC recommends that NMFS take immediate steps after the final rule has been adopted either to revise the current co-occurrence model or develop a new, more suitable model capable of estimating the extent to which the co-occurrence between whales and fishing gear would be reduced, together with the uncertainty of the estimate. In addition, the MMC recommends that NMFS include in the FEIS a discussion of the full range of ALWTRT and peer-reviewer comments regarding limitations of the model.

Among other things, the Committee of Independent Experts peer reviews recommended validation of the co-occurrence model, and the MMC supports that recommendation. There are at least three approaches that could be used to validate the model: (1) examination of the assumptions and predictions of the model in smaller areas where data are best; (2) comparison of the model with another model based on different assumptions and structure; and (3) evaluation of the accuracy of predictions of the model using simulated data with known values. With regard to the specific concern that the model excludes co-occurrence risks for exempted inshore waters, the DEIS (page 5-7) noted that another model had been prepared by a group of scientists from Keene State College, Woods Hole Oceanographic Institution, the New England Aquarium, and the Maine Lobstermen's Association. That model has been developed at a finer scale to estimate the co-occurrence of gear and whales on the east coast, including the exempted areas in Lobster Management Area 1 off the Maine coast that may include half or more of all vertical lines in east coast waters and a significant proportion of the co-occurrence risks to right whales. While the model has not yet been completed for the entire east coast, the MMC understands that the Maine portion is operational. Therefore, much can be learned about the extent of uncertainty in the NMFS co-occurrence model by comparing results of the two models within the areas of overlap. Given the significant limitations

identified with the NMFS co-occurrence model and the importance of ensuring that its results are reliable for evaluating the effectiveness of the final rule, the MMC recommends that NMFS, before preparing the FEIS, conduct a study to validate the co-occurrence model relied on in the DEIS against the results of the alternative co-occurrence model at least for Lobster Management Area 1 and, based on those results, modify the model and recalculate co-occurrence estimates. The MMC believes a delay of six months or more would be warranted to conduct the validation exercise, adjust the model, and reevaluate the effectiveness of alternative measures.

Clarification of the ALWTRT's decisions

Finally, we note that the description of ALWTRT activities and the proposed approach in the DEIS do not accurately reflect discussions and decisions of the Team. The Addendum to this letter provides additional details. The MMC recommends that NMFS include in the preamble to the final rule and in the FEIS a discussion that more accurately reflects decisions reached by the ARWTRT, particularly with respect to the original deferral of rulemaking to prevent vertical line entanglement risks, and that makes clear that such a deferral was not recommended by the Take Reduction Team. Those documents also should reflect that, although subgroups of the Team offered various management proposals considered in the current rulemaking, the Team did not reach consensus on any of them.

Thank you for considering the MMC's comments and recommendations. If you have any questions regarding these comments, please don't hesitate to contact me.

Sincerely,

Rebecca J. Lent

Rebecca Lent, Ph.D.
Executive Director

One Attachment

Addendum: Marine Mammal Commission additional comments on the proposed rule published by the National Marine Fisheries Service (NMFS) to amend the Atlantic Large Whale Take Reduction Plan (78 Fed. Reg. 42654) and the associated draft environmental impact statement (DEIS).

Further comments on gear marking

The Commission has four specific recommendations to strengthen the gear marking provisions of the proposed rule.

1) The proposed rule would require only three marks on buoy lines (i.e., the top, middle, and bottom) regardless of their length. An analysis of the average length of lines removed from whales is not provided, but information on entanglements provided to the ALWTRT suggests that lines removed from many whales are often 200 ft in length or less. Because trap fisheries subject to the rule may set gear in waters more than 1,000 ft in depth that require lines much longer than 200 ft, marks may not be present on the fragments of line recovered. The distance between marks on a given line may exceed 500 ft. To better assure that marks on buoy lines from gear set in deep water will be visible on entangled whales or present on gear removed from whales, buoy lines greater than a certain length (e.g., 600 ft) should be required to have marks at regular intervals (e.g., every 200 ft), rather than just at the top, middle, and bottom.

2) Although apparently intended, it is not clear whether the proposed rule would require buoy line marking on all traps, pots, and gillnets in all areas subject to regulation in the proposed rule. For example, section 229.32 (a)(3) of the rule, which identifies where marking is required for traps and pots, mentions a "North Offshore" area, but not offshore areas off the mid- and south Atlantic coasts. Similarly, Exhibit 2-3 in the DEIS (page 2-12) does not identify a "North Offshore" area, but rather shows only one continuous offshore area extending from Maine to Florida. The map also does not identify the "Massachusetts Restricted Area" mentioned in the rule for trap/pot gear, leaving the boundaries of this area unclear. In addition, the list of gear marking areas for traps and pots does not include the "Southeast U.S. Restricted Area North", although it is shown in Exhibit 2-3, suggesting that no gear marking would be required in that area.

3) As proposed, the marking scheme would enable the identification of only six broad trap/pot fishing areas and five gillnet areas. To better define the major fishing areas of gear entanglement, the scheme should establish some additional areas where a unique mark is required and notes that this can be accomplished using the same colors already selected for the proposed scheme. Specifically, the MMC suggests that the scheme include two additional color combinations to distinguish 1) gillnets set in waters off southern New England (i.e., east of Long Island and south of Cape Cod including waters along the Outer Cape) and 2) trap/pot gear set south of the Maine-New Hampshire border in Lobster Management Area 1 (which could include most or all the Stellwagen Bank/Jeffreys Ledge and Cape Cod Bay Restricted areas and the waters inshore of those areas that are not otherwise exempted).

4) The gear marking requirements apply only to buoy lines and not groundlines. ALWTRT members have asked NMFS repeatedly for information on the effectiveness of the sinking groundline requirements already in place, but, because there has been no way to distinguish sinking

groundlines from sinking buoy lines on gear removed from entangled whales, NMFS has been unable to make that assessment. The requirement for more marks on buoy lines will assist in making that distinction for whales entangled in gear used by U.S. fishermen. However, the situation is complicated because Canada has no gear marking requirements. It will be impossible to distinguish unmarked sinking groundlines on the gear of U.S. fishermen from any similarly unmarked sinking lines originating in Canada. Therefore, to monitor the effectiveness of the existing groundline requirements, a distinctive mark should be required at specified intervals along all groundlines wherever sinking lines are required. The major need is to verify the overall effectiveness of the sinking groundline requirements, and that can be accomplished by requiring a single distinctive mark for all groundlines in all areas and all fisheries. We suggest that mark either be a distinctive color for all groundlines placed midway between each trap or pot in a trawl or a colored thread woven throughout the line.

Further comments on the co-occurrence model

Although the DEIS includes a section discussing model limitations, those limitations are not adequately reflected in the modeling results. The model results are useful only for comparing the possible effectiveness (i.e., estimated reductions of the co-occurrence of whales and fishing gear) of one alternative relative to another. Despite that caution, the DEIS presents model results as if they were based on reliable quantitative data that yielded a statistically meaningful measure of overall reduction in co-occurrence risks. For example, the title of Exhibit 5-5 in the DEIS (page 5-10) implies that the table is based on empirically derived numbers rather than estimates of vertical line numbers generated by fishermen and state managers. Similarly, the title of Exhibit 5-6 implies, based on model results, that it is reasonable to conclude that the alternatives will reduce co-occurrence risks by 35.8 to 41.2 percent compared to the No Action alternative. This is not a conclusion that is supported by the model. Because of the model's limitations, the results are useful only to show that there might be a 5 or 6 percent difference between all alternatives assuming risks in exempt areas are negligible. A more accurate title of Exhibit 5-6 would be "Relative Reductions in Co-Occurrence Scores of Alternatives in Non-Exempt Areas." Therefore, the MMC encourages NMFS to revise the text of the DEIS to make it more explicit in the FEIS that the model results, particularly those related to percentages of reduction in co-occurrence between whales and gear (e.g., Exhibits 5-5 and 5-6), are not predictions of overall risk reduction, but are merely comparisons of the alternatives.

The estimated co-occurrence percentages do not reflect entanglement risks in the exempted areas off Maine and New Hampshire. Although that area is relatively small, the model indicates it has the greatest concentration of vertical lines anywhere along the east coast. Indeed, it may account for half of all vertical lines in the region. Although the frequency of occurrence of North Atlantic right and other whales in those waters is believed to be very low, almost no effort has been made to confirm the density, seasonality, or turnover of whales in exempted areas. Therefore, the MMC believes the risk of entanglement is underestimated. For example, Exhibit 5-4 in the DEIS (page 5-9) shows that some 225,000 vertical lines may be deployed in any given month in regulated areas, but no information is provided on the number of vertical lines in the exempted area. Given the uncertainty about the frequency of large whale occurrence in the exempted area and especially since gear removed from entangled right whales has been traced to that area, the DEIS should provide information on the numbers of vertical lines in the exempted area, which will allow better understanding of the factors NMFS considered when it chose to exempt those areas. Therefore, the

MMC suggests that NMFS includes information in the DEIS on the estimated numbers of vertical lines from trap/pot fisheries and gillnets deployed in waters exempted from the proposed rule.

Further comments on the characterization of the ALWTRT process and decisions

In some portions of the *Federal Register* notice and DEIS, the descriptions of ALWTRT activities and decisions are not accurate. On page 42655 of the notice and 2-7 of the DEIS, it states that "at the 2003 meeting (of the Atlantic Large Whale Take Reduction Team), the Team agreed to manage entanglement risk by first reducing the risk associated with groundlines and then reducing the risk associated with vertical lines in commercial trap/pot and sink gillnet gear." That statement is not true. An accurate characterization of the 2003 meeting, as reflected in the meeting summary, would note that the Team agreed by consensus that the revisions of the Large Whale Take Reduction Plan needed to address two overriding principles: (1) reducing risk associated with vertical lines *and* (2) reducing profiles of all groundlines. There was neither discussion, nor agreement by the Team prior to the 2005 rulemaking on whether those two principles should be addressed in separate consecutive rulemaking actions. The decision to do so was made solely by NMFS. The ALWTRT did not agree on or express support for that approach. Those and other comments were set out in the Commission's 12 May 2005 comments on the 2005 DEIS for the sinking groundline rule.

The notice and DEIS go on to state that "at the 2009 ALWTRT meeting the Team agreed on a schedule to develop a management approach to reduce the risk...due to vertical lines" (notice page 42655, DEIS p 2-8 and 3-2), which is misleading. NMFS staff developed the schedule and presented it to the Team as a point of information to guide the Team's work. Although the Team acknowledged the rationale presented by the Service for its schedule, the Team neither developed the schedule provisions nor agreed to the agency's schedule. Indeed, as noted in the summary of the 2009 meeting, several Team members expressed concern that the five-year rulemaking schedule was too slow. Given the importance of ALWTRT agreements, which are based on consensus, it is unfortunate that NMFS has mischaracterized Team decisions and positions. Thus, the MMC recommends that NMFS include in the preamble to the final rule and FEIS a discussion that more accurately reflects the deliberations and decisions of the ALWTRT, particularly with respect to the original deferral of rulemaking to prevent vertical line entanglement risks, and making it clear that such a deferral was not recommended by the Take Reduction Team. Those documents also should reflect that although subgroups of the Team offered various management proposals considered in the current rulemaking, the Team did not reach consensus on any of them.

RECEIVED
SEP 18 2013
BY:_____

9-15-13
Kevin L. Beal
P.O. Box 64
Beals, ME 04611-0064

Mary Colligan, Assistant Regional Administrator for Protected Resources

Dear Mary Colligan:

I am in favor of Alternative I of the Atlantic Large Whale Take Reduction Plan proposed rule because the right whale population has increased by more than 50% since any gear changes have been required.

I am not in favor of any closures or any new gear marking proposed under all alternatives. The occurance of whales in exempted waters is so small, that gear marking would be an un-necessary financial and time-consuming burden for fishermen.

Sincerely,
Kevin L. Beal
Kevin L Beal

16 Newport Rd
Hull MA. 02045
Sept 11 2013

Mary A. Colligan
Assistant Reg. Adm. for Protected Resources
Northeast Reg Off.
NOAA Fisheries Serv.
NOAA
55 Great Republic Drive

RECEIVED
SEP 18 2013
BY: [redacted]

Dear Ms. Colligan,

I am almost 70 years old and have fished since I was 12, except when I served in the Navy spending time in the the Mekong Delta of V.N. I came home and found a job lobster fishing. This occupation would expose me to risks with mother nature and lessen my exposure to risks caused by humans. I would feel less threatened.

The 700+ pages of the whale plan was difficult to read thru in so short a period of time. I have attempted to read this document & it scares me.

The fisheries I have participated in have been numerous; tub trawling, clam digging, Scottish seining, Gill Netting & lobster fishing. We have also taken part in many research projects in hopes of finding ways to help our resources & allow fishermen to continue to fish.

All of these fisheries once having been threatened by overfishing, I voluntarily removed myself from.

My hopes were to see stocks rebound; thus allowing fishermen to go back or continue to fish. This of course would be beneficial to economic stability of the community as well.

Lobster fishing was and is the only self sustaining fishery left. I feel threatened that this will not prevail with what is being suggested by these suggested plans.

I have spent over 300 days a year on the water for 35-40 years. The amount of marine mammals in general that have come back to this region I fish have increased in remarkable numbers.

Data in various documents give figures of over 300 wright whales back in 1998; additional data says 385 wright whales. I don't understand why there's such a difference. In 2009 425 wright whales were reported.

A growth pattern is evident with this population whales are increasing; fishermen are decreasing so I guess the logic is the whales are winning; so lets increase more regulations to create more hardships + threaten more fishermen. This will make it easier for the whale populations to survive.

Hearings given by the Nmfs years back gave numbers of some 250 wright whales known to exist back in the 1990's. We were told

They were endangered. So our break aways on our endlines, and the elimination of Poly groundlines were needed. What we didn't know was that in 1935 it was believed that only 100 wright whales were estimated to be swimming around. These whales, had been on the increase even with poly ground lines + no breakaways.

It appears since our whaling days were over in 1935, or there abouts, the whales have been on a steady increase.

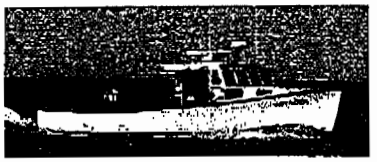
It does not make sense, If these figures are true, and most appear to be, that further regulations are needed.

All whale numbers are increasing at substantial rates. Entanglements are minimal + haven't effected the increase in whale numbers. Lobster fishermen have diminished in numbers in Mass. and so have the number of Lobster traps. All these are positive points. Why can't we leave things as they are?

My recommendations are to leave things alone. The endangered species in the near future could very well be the lobster fisherman.

Efforts should be put forth to GARANTEE A future for the younger men + woman who wish to continue fishing for lobsters

Respectfully
Peter M. Mahoney
F/V Windermere



F/V VOYAGER

Todd M. Jesse
27 Olmstead Terrace, Plymouth, MA 02360
(508) 747-4938

RECEIVED
SEP 16 2013
BY:

September 15, 2013

NOAA Fisheries Service

Dear Mary Colligan,

I am submitting these comments on the DEIS for Atlantic Large Whale Take Reduction Plan. The only alternative I can support is Status Quo. I have commercially fished for over 35 years and fish mainly in the Critical Habitat Area of Cape Cod Bay and Stellwagen area. For the past 17 years we have worked with NMFS and MA DMF. We have eliminated floating rope, installed weak links and marked our buoy lines. When this process started there was 295 whales now there are over 500. The counting of the whales is wrong or something is working. I am strongly opposed to closures from January to May. I fish all my gear in this area if a closure was to go into effect in January I would have to start bringing gear home in November. So that means I have reduced income in November and December, with no income January to May. In today's economic times does this make sense? I do understand that NMFS is under pressure from ESA and MMPA. These laws need to be reworked. That's where this whole process must start! NMFS at the public hearing stated that the whales and gear are in the same place at the same time making a "potential" entanglement. This I understand BUT there are cars and pedestrians on the road at the same time. Unfortunately accidents do happen but we do not close the roads. The network that is set up today for disentanglement is far greater than it was 17 years ago. We have plans now to save the whales. As a commercial fisherman that last thing I want to see is a whale die, it is part of the ocean cycle that supports me. So please leave things at Status Quo.

Respectfully,

Todd M. Jesse

F/V Voyager

F/V Sheila Anne
Robert L. Nudd Jr
531 Exeter Road
Hampton, New Hampshire 03842-1014

RECEIVED
SEP 13 2013
BY:_____

Mary Colligan, Assistant Regional Administrator for Protected Resources
National Marine Fisheries Service
55 Great Republic Drive
Gloucester, Ma 01930
Attn: ALWTRP Large Whale Rule

Dear Ms. Colligan,

I wish to comment on the proposed end line rule in the large whale take reduction plan.

First I want to express my strong support for the exemption of New Hampshire state waters. My reasoning for this is based on the rational presented before the TRT by the New Hampshire Fish and Game Department and the safety of the small boat fishery within state waters. Although I can not speak for the New Hampshire Fish and Game Department, I have been assured by The Director of Marine Fisheries that if the exemption is granted all current regulations related to the LWTRP will remain in effect. This includes all of the ground line regulations and I would oppose any effort within the state to change this. I would hope that this exemption will be incorporated into the final rule.

I support the traps per trawl requirement for federal waters as outlined in the preferred alternative. That is: 3-12 miles 10 traps, and 20 traps beyond 12 miles. I would however like to see some flexibility incorporated into this provision where by a fisherman would be allowed to fish shorter trawls by giving up traps fished in these areas resulting in the same reduction in end lines. I believe this was outlined in a comment by the New Hampshire Fish and Game Department. This flexibility is a safety issue for smaller boats.

In regard to the increased gear marking requirements I have little objection to marking buoy lines 3 times nor do I object to the length of the mark. However I would like to see a different mark between Maine exempt waters and New Hampshire exempt waters (assuming the NH exemption is part of the final rule). In addition I find the movement of lines between federal and state waters (with different marking requirements) to be very problematic. I do not know what the answer to this is. It may be that those with federal permits continue to use the non exempt markings even though they may sometimes fish in exempt waters. My rational for this is that they spend the vast majority of the year in non exempt waters and this is the area where they most likely may have interaction with whales.

Finally I want to express my very strong opposition to the Jeffery's Ledge closure. Although suggested by some members of the TRT I don't feel there was wide support within the group and I don't feel it was examined enough to warrant inclusion in the final rule. I do believe that the displacement of effort within the proposed closure and the concentration of effort around the closure would pose far more risk to whales than currently exists. I believe this closure would create enormous gear conflicts not only within the lobster fishery but with the mobile gear fishery as well. This proposal would be devastating to an already economically stressed fishery.

Thank you for considering my comments and I hope you see fit to include them in the final rule.

Sincerely,

Bobby Nudd
TRT Industry Representative
New Hampshire



www.littlebaylobster.com

RECEIVED
SEP 13 2013
BY:_____

158 Shattuck Way
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Phone: (603) 431-3170
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September 12, 2013

Mary Colligan
Asst. Reg. Admin. For Protected Species
National Marine Fisheries Service, NERO
55 Great Republic Drive
Gloucester, MA 01930

Dear Ms. Colligan,

I am writing in response to NOAA Fisheries / NMFS request for comments on the Large Whale DEIS and Proposed Rule. I support the section of Alternative 2 that incorporates NMFS requirements for numbers of traps per trawl in order to fish with two endlines and a minimum of twenty traps per trawl to be used in Area 3.

I cannot support, however, the Alternative 2 gear marking provision for Area 3. The new proposal relative to gear marking would be a far greater cost to fisherman than any benefit for whales. There is no guarantee, nor data to suggest, this marking requirement would increase the ability to identify gear. Also, creating and maintaining three 12" marks on offshore endlines is more challenging than one may realize. Offshore gear is seldom brought back to the dock since it is hauled and immediately replaced into the ocean, hence the lines are always wet and adding marks or replacing marks is extremely difficult if not impossible on wet line. Further, an offshore lobster vessel's "territorial fishing grounds" move and change over the course of a fishing year and any change in fishing grounds often means changes in fishing depths from between 100 to 1200 feet with the concurrent change in endline lengthening. To abide by the proposed regulations, offshore vessels would need to replace endlines frequently in order to keep marks at the top, middle, and bottom of the line; otherwise there would be black marks in varied locations on endlines or in areas other than top, middle and bottom. Obviously this situation could create enforcement issues. In short the gear marking provision is impractical and costly for the following reasons:

1. Carrying thousands of pounds of extra line onboard a fishing vessel is impractical.
2. Carrying thousands of pounds of extra line may preclude the ability to haul gear replacements out to fishing areas as needed.
3. Splicing new endlines would impact fishing time and the "bottom line" or profit.

5. High likelihood of non-compliance due to marking issues (see above).
6. Enforcement problems would ensue if the endlines were not marked exactly as regulated or due to non-compliance (also problematic for cost vs. benefit).

Finally, offshore lobster gear has always been rather easily identifiable even without gear markings due to its size. Gear markings in other lobster areas may provide some idea of the origin of an entanglement; however, gear marking within Area 3, (situated from Maine through North Carolina) does not identify a locale other than outside of thirty miles offshore. Therefore, additional gear markings on offshore line is not only impractical, but serves little purpose and is unnecessary.

I further do not support NMFS preferred alternative which incorporates a closure within Jordan Basin. Closure is unjustified. It is my understanding the entire Large Whale Take Reduction Team, including those individuals who prepared the Jordan Basin proposal, voted to make determinations on future recommendations to NMFS for regulatory action based on "co-occurrence." This method would indicate the simultaneous presence of both whales and fishing gear. The DEIS and the proposal clearly state the recommendation for closure is based on a "hot-spot" analysis of whale location and behavior. It is unacceptable for members of the Take Reduction Team to vote one way and act another. Further, it is inappropriate for the regulating agency to accept a recommendation which ignores the team's approval of a different methodology to address the whale issue. It is surely unacceptable for the regulating agency, while in attendance and in full understanding of the manner in which the co-occurrence vote occurred, to consider a non-voted recommendation as their "*preferred alternative.*"

The Jordan Basin proposal does not meet any appropriate or acceptable representation of the co-occurrence model. The "hot-spot" analysis points out a high presence of whales and suggests that any amount of gear is a risk. In fact, however, Jordan Basin does not exhibit co-occurrence and the amount of gear in the area during the timeline proposed by the Closure (November 1-January 31) is minimal. Further, after perusing the socio-economic analysis quoted throughout the DEIS document, it is abundantly clear the data used for the offshore lobster fishery is extremely flawed. The crew size, length of fishing trips, estimated catch, and amounts of gear per vessel, as well as the gear fishing in Jordan Basin during the closure period, are all in error. The estimate of traps fishing is grossly over estimated and the economic impacts are grossly under estimated. Comments regarding alternatives to fishing within Jordan Basin, i.e., time and cost to move to other fishing grounds, are also inaccurate. Within the document it is stated that, "complete information on lobster vessels operations in offshore waters is not available making it difficult to predict how vessels that currently lobster in the Jordan Basin area would respond to closure" yet the document suggests no economic impact to the vessel and/or owner. Good decisions cannot be based on poor or non-existent data. The data is flawed and provides no justification for anything that is discussed within the DEIS.

Lastly, the other information within the document, with which I can agree, indicates any closure would merely create a web or fence of gear around the perimeter of the area and thus

make it more difficult for whales to navigate and, by definition, more prone to entanglement not less.

It is important to remember that when considering closing areas due to whales, the lobster industry was severely impacted by the cost of sinking line and, as a quid-pro-quo for sinking line, the closing of areas was taken off the table as a management strategy by NMFS. Further, both Dynamic Area Management (DAMs) and Seasonal Area Management (SAMs) areas which were known to be *important* areas in which large numbers of whales congregated, were opened up to fishing as long as sinking line was used. Once sinking line was enacted, the DAMs and SAMs ceased to exist. Surely if DAMs and SAMs could be deregulated with the greater number of both whales and large number of traps in those areas the very few numbers of traps fishing in Jordan Basin during the proposed time period would certainly not indicate closure be either necessary nor justified. Since SAMs and DAMs are no longer necessary nor being regulated, it would seem logical that no area closures should be considered for future regulatory action.

Considering the continued and consistent increase in not only right whale but other whale populations, it is abundantly clear the previously mandated and now implemented sinking line and weak link mechanisms have indeed brought about the desired result of healthier whale populations and, for the reasons already cited above, closures in Jordan Basin are both unnecessary and even counter-productive.

In summation, I support an Area 3 vessel needing at least twenty traps per trawl in order to fish with two end lines. I do not support a change to the current gear marking provision and I am strongly opposed to ANY closures of areas due to the presence of whales.

I appreciate the opportunity to comment on this important issue.

Sincerely,

Jonathan Shafmaster

JSS/vo
1A753

RECEIVED
SEP 12 2013
BY:_____

NMFS
55 Republic Drive
Gloucester, MA 01930
Attn: Mary Colligan, Assistant Regional Administrator for Protected Species

Written comment to the Atlantic Large Whale Take Reduction Plan (ALWTRP)

Dear Ms. Colligan,

The following comments of support or opposition to components of the ALWTRP are as follows.

a) I support the exemption of New Hampshire state waters and any alternative that has that as a component of the final plan.

b) I support the minimum number of 10 traps per trawl for waters between 3-12 miles and any alternative that has that as a component of the final rule.

c) I support the minimum number of 20 traps for waters beyond 12 miles and any alternative that has that as a component of the final rule.

d) Buoy line marking requirements for exempted waters in NH & ME should have separate colors.

e) Buoy line marking requirements for lobster gear that travels from state waters to federal waters needs to be improved so as to be not confusing.

f) Marking the buoy lines 3 times in the length of the line and with each mark needing to be 12 inches in length seems excessive. Maintaining the mark at the top end of the buoy line is supported.

g) I strongly OPPOSE any alternative that includes the Jeffries Closure Area. Making this a requirement would not serve its intended purpose by any means and potentially increase any chance of an interaction with whales.

I hope these comments will be incorporated in the final rule of the ALWTRP.

Sincerely Edward Hopsky

Downeast Lobstermen's Association
P. O. Box 88
Belfast, Maine
04915

September 15, 2013

Mary Colligan
Assistant Regional Administrator for Protected Resources
NOAA Fisheries Northeast Region
55 Great Republic Drive
Gloucester, MA 01930

Re: Large Whale Proposed Rule

Dear Ms. Colligan:

This letter is the reply to the Proposed Rule "Taking of Marine Mammals Incidental to Commercial Fishing Operations; Atlantic Large Whale Take Reduction Plan Regulations" as discussed by the Downeast Lobstermen's Association in association with the Department of Marine Resources and Maine's Take Reduction Team (TRT) delegation.

D.E.L.A. worked very closely with the D.M.R. and the Take Reduction Team, industry associations and Maine fishermen. We also agree that the proposal is not a "one size fits all" rule, as Maine has a very diverse coastline from one end of the state to the other. To the East, we have a very rocky bottom with individual islands, which some are inhabited and some are not. The majority of our islands are way too rocky and shallow to even realistically allow a whale to "fit" in with the environment around it. This leads to our major concern for the safety of the fishermen as well as the concern for the mortality of the whales.

As stated at the meeting with the D.M.R. and the TRT, to fish large trawls in these areas would create a big threat to the safety of our students and seniors.

Ultimately, we do support the proposed Maine area-specific trawl minimums that were put before us in the preferred alternative and proposed rule. We also propose a ¼ mile exemption around the islands that are partly or fully outside the current exemption line. This proposal would have a positive impact on the safety of those that fish in that area and unlikely to have any effect on the whale population there, if any.

D.E. L.A. also proposes to limit the increased trawl minimums around the islands that constitute state waters, but occur outside the three mile line, which includes Mount Desert Rock and Machias Seal Island. Considering the changes of depth and extreme bottom types, and the mandatory use of sinking rope, trawling up is a major safety concern for the lobstermen.

D.E. L.A. strongly opposes the proposed Jeffreys Ledge and Jordan Basin closure. By the fishermen having to move their gear to a more dense area that surrounds the closed area, it will have the possibility of gear conflicts. This will put additional pressure on our Marine Patrol as well as a financial and economic hardship for those that fish in those areas. We must also consider the well-being of our fishermen's survival, also safety and economic hardship if this occurs.

In lieu of this proposed closure, we also propose increasing trawls (from November 1 to the end of February) in Zones F and G to 15 traps per trawl between 6 and 12 miles and 20 traps per trawl beyond 12 miles offshore. This will further reduce endlines as a more realistic approach to the closure proposal.

D.E.L.A. opposes any increased gear marking in Area1. As stated at our previous meeting, this will only inform the researchers where the endlines were originally deployed, not where the entanglement occurred. D.E.L.A proposes that the increased gear markings be suspended until NOAA Fisheries is able to develop more definitive findings for the regions. D.E.L.A. has met with Glenn Chamberlain to discuss further co-operation with pilot programs concerning better science and working relationships.

To increase the gear markings, is very labor intensive, especially if the fisherman transfers from inshore to offshore fishing. This would involve further gear marking and perhaps even changing the ropes from add-ons to deeper and longer depths for the seasonal change-over.

D.E. L.A. proposes that the industry maintain existing fishing practices inside the four "Pocket Waters" described in the federal law which DMR states that the coordinates are inaccurate in both 16 USC 5701 and 50 CFR 697.24 which do not match. We would like to allow the industry to maintain pairs instead of triples which is more practical for both the industry and enforcement. We understand that the DMR has provided you with the proper coordinates for the location of these "Pocket Waters."

To conclude our statement, we appreciate your consideration to hear our concerns and the possible ability to work more closely with you in the future. We have always claimed that "Fishermen are the best stewards to the whales." We want to work to make sure that the whales are protected as well as our fishermen and their families.

Sincerely,

Sheila H. Dassatt
Executive Director
Downeast Lobstermen's Association

PUBLIC SUBMISSION

As of: September 05, 2013
Received: September 04, 2013
Status: Pending_Post
Tracking No. 1jx-87f5-rg7q
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0212
Comment from steve kent

Submitter Information

Name: steve kent
Address:
Hamilton, OH, 45011
Email: houseandcomfort@inbox.com

General Comment

It is time vigorously protect what little whales are left in the oceans or surely soon this planet will be whale free.

Especially large species need the most help.

Whale entanglements in a big problem. Please supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements. Ensure that the waters of Maine and New Hampshire are included in any regulations and policy
Including gillnets in entanglement reduction strategies and Increasing the management efforts in the mid-Atlantic region.

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Mary Colligan
Assistant Regional Administrator for Protected Resources
NOAA Fisheries Northeast Division
55 Great Republic Drive
Gloucester, MA 01930

Attn: Large Whale Proposed Rule

September 16, 2013

Dear Ms. Colligan:

Please accept these comments from the Maine Lobstermen's Association (MLA) on the Proposed Rule, *Taking of Marine Mammals Incidental to Commercial Fishing Operations; Atlantic Large Whale Take Reduction Plan Regulations.* The MLA is Maine's oldest and largest fishing industry organization, established in 1954, whose mission is to advocate for a sustainable lobster resource and the fishermen and communities that depend on it.

MLA appreciates the outreach efforts of National Marine Fisheries Service (NMFS) Protected Resources staff to solicit ideas and hear concerns of Maine's lobstermen through the scoping meetings and the recent round of public hearings. Although Maine lobstermen have much in common with our peers along the Atlantic coast, we also have many unique issues which require careful attention as new whale rules are contemplated. Any new rules must recognize the diversity of Maine's lobster fleet, must not put any vessel or crew at risk, and must be operationally and economically feasible.

MLA also acknowledges the incredible amount of work carried out on behalf of lobstermen by Maine's Department of Marine Resources (DMR). DMR has worked closely with the industry to find an approach to meet the mandates of the whale plan in a manner that minimizes safety risk to our lobstermen and that is both operationally and economically feasible.

The MLA has been very encouraged by NMFS move away from its one-size fits all, broad-based rulemaking approach, in favor of an area-specific, risk based approach for the proposed vertical line rule. We commend the agency for soliciting feedback from stakeholders to guide the development of this rule, and agree with your approach to place the most onerous management measures in areas where the risk is greatest.

The MLA has worked closely with our industry to help them understand the entanglement issue and the legal mandate driving this round of vertical line regulations. However, Maine lobstermen remain frustrated over the need to implement additional whale rules given the lack of definitive data regarding how whales are entangled in fishing gear and the impact that the Maine lobster fishery has on whales relative to other fisheries and impacts. Lobstermen consistently state the rarity of seeing right whales off the Maine coast.

Lobstermen have also expressed worry about the unintended consequences of implementing new regulations without understanding the impacts of all regulations as a whole. For example, many lobstermen note that existing regulations requiring weak links and sinking rope have caused increased gear loss which could be contributing to entanglements as ghost gear. And Maine lobstermen continue to struggle with the existing sinking groundline requirement that poses significant ongoing safety, operational and economic challenges.

Trawling Up Measures

The MLA has received mostly positive feedback and support for the trawling up measures proposed in Alternatives 3 and 5. This proposal, submitted by the state of Maine, reflects much consideration and input from the industry. It removes a significant amount of vertical line from the water in a manner that allows our fleet to operate safely and without excessive cost. The change will be significant for some lobstermen and less so for others, but it is a good overall framework for the Maine lobster industry. However, lobstermen have expressed a few concerns which need to be addressed.

Lobstermen who fish around Maine islands located in non-exempt waters are extremely concerned about the safety of trawling up in these areas. The waters around these islands are shallow and the bottom is extremely rough and rocky. Despite the distance of some of these islands from shore, the fishing areas are considered state waters characterized by shallow, rugged, rocky bottom habitat. Many of the lobstermen who rely on these waters are our youngest and oldest lobstermen, fishing from smaller vessels, and deploying single traps. Trawling up to pairs or to five trap trawls, as proposed in this rule, would pose significant operational and safety concerns and severely compromise their ability to fish these productive areas. Lobstermen would be forced to risk the safety of the vessel and crew, or to give up fishing these waters which would be a significant economic hardship. MLA proposes that NMFS adopt a 1/3 mile exemption around Maine's islands. The DMR has stated that this approach to exempting islands would be enforceable.

In addition to the issue identified by islanders, a small group of lobstermen have stated that they cannot safely fish the required trawl minimums that begin at the 12-mile line. Maine's fleet is very diverse and there are some vessels that are unable to deal with the weight of the gear fished in these deep waters making trawling up to the proposed 15 trap standard a safety hazard. The issue is, in part, the number of traps, but more importantly, it is the amount and weight of the rope that must be handled when fishing these longer trawls in deep offshore waters. These boats may be limited due to length, width or the hauling system.

In order to avert this risk, these lobstermen have stated that they would need to purchase a larger boat, and to cover that cost, they would need to fish more traps and fish further offshore. The unintended consequence would be an increase in fishing effort and added expense for these vessels, and a displacement of fishing effort into offshore areas where whales are sighted more frequently.

While the MLA believes the proposed trawling up requirements will work for the vast majority of Maine's vessels, we remain concerned about this group of vessels that may be at risk. MLA proposes that NMFS adopt a process for these vessels to apply for a "safe trawl equivalency" which would allow them to fish the areas they've traditionally fished with a safe number of traps per trawl. The MLA proposes that any safety equivalency not be lower than 10 traps per trawl in areas 12 or more miles from shore. Application for such an equivalency should require a lobsterman to explain why he is not able to fish the standard trawl limit for his area and include a site visit by a NMFS gear expert to corroborate the concern.

Also critical to the success of the trawling up requirements is the placement of the 6-mile line. The line proposed by Maine DMR is located at a point where the bottom transitions from the rough rocky area which characterizes our inshore waters to a less rugged, gravel and mud substrate more typical of offshore areas. Locating the line where this substrate transitions will allow Maine lobstermen to add additional traps to their trawls and fish them safely. MLA strongly urges NMFS to adopt the coordinates for the 6-mile line proposed by Maine DMR.

The MLA requests that NMFS ensure that the pocket waters, as described by Maine DMR, continue to follow the state waters rules to ensure that the trawling up requirements can be safely implemented and ensure that these new rules remain consistent with Maine's enforcement of these waters.

Finally, MLA urges NMFS to include a recommendation in the new rules that lobstermen maximize the number of traps per trawl to the extent possible as a voluntary measure, similar to the recommendation that all ropes be as knotless as possible.

Seasonal Closures

The MLA views fishing closures as a management measure of last resort. Given the small amount of credit attributed to closures contained in the Proposed Rule by the co-occurrence model, the MLA finds that the conservation benefits do not outweigh the economic and operational hardships that lobstermen would face. NMFS estimates that the closures proposed in the preferred alternative will remove more than 32% of vertical lines from the Northeast region, and will reduce the co-occurrence of whales and fishing gear by 42%. However, management alternatives which did not include closures yielded similar results of 31% reduction in vertical lines and nearly 38% reduction in co-occurrence.

MLA is extremely concerned that the closures included in the proposed rule's preferred alternative were developed using different methodologies resulting in significant disparity in the spatial scale of each closure as well as the density of right whales sightings used in the analysis. Given the extreme economic and operational consequence of such a management

approach, the agency should work with the New England Aquarium to refine its methodologies and develop a standard method to be used in future analysis.

MLA is particularly concerned with the Jeffrey's Closure, given its direct impact in displacing Maine lobstermen. This closure is massive and its conservation benefit is minimal. This closure contains prime fishing grounds for affected lobstermen during the fall and winter months.

Not only does the closure itself not provide significant risk reduction in the co-occurrence model, but lobstermen have consistently stated that they would be forced to fish their gear around the edges of the closure, creating a wall of gear and would dramatically increase gear conflicts. This minimal improvement in conservation does not offset the loss of access to prime fishing bottom for a four month period. Lobstermen will fish gear in concentrated areas on less productive bottom around the closure, giving up much needed income and potentially increasing the risk to whales.

The MLA endorses the additional trawling up measures contained in DMR's original proposal for the Jeffrey's Ledge area; increasing trawl limits to 20 traps per trawl in Zones F and G for four months from November 1 to February 29. The MLA would support shifting the timeframe of this requirement from October through January.

The MLA believes that the proposed Jordan Basin closure is at least based on sound data and methods, however, we do not support the boundary of this closure extending into Area 1. Extending this closure into another fishing management area would cause unnecessary operational issues for Area 1 lobstermen and would be extremely difficult to enforce. Closures should not be considered in the absence of data linking gear fished in those areas to known entanglements.

Gear Marking

The MLA strongly opposes the gear marking scheme proposed in Maine's exempted state waters. Gear marking does not directly provide any conservation benefit to whales. This proposed rule attempts to provide a marking scheme that would differentiate gear fished in the exempted versus non-exempted waters, but it does not achieve this. The proposed gear marking scheme is operationally impossible because Maine lobstermen fish and shift the same gear from exempted into non-exempted waters. Lobstermen who shift gear in deeper waters either lengthen their lines or tie lengths of rope in, further complicating any gear marking scheme. To comply with this proposal, Maine lobstermen would need to purchase and rig a second set of endlines with a second color scheme. This would be cost prohibitive and extremely time consuming.

MLA is also concerned about the requirement to expand the size and frequency of gear marking outside the exemption line. Any requirement to mark ropes three times with 12 inch marks would be extremely labor intensive. As stated above, lobstermen's practice in lengthening and adding lines to fish in deeper waters makes this operationally problematic. Further, as marks wear off and foul over the season, it would be impossible to keep all ropes properly marked. Lobstermen have noted that the additional marks proposed at the top and bottom of the line

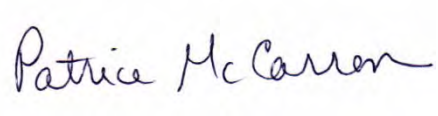
are redundant because all lobster buoys and traps are marked or tagged with a lobstermen's license information.

Implementation

Finally, we urge the agency to use June 1 as the implementation date for any new whale regulations. This is the date that lobstermen must have their trap tags in place for the season and allows lobstermen the time they need to make gear adjustments to comply with any new regulations.

Thank you for the opportunity to provide input.

Sincerely,



Patrice McCarron
Director

THE GENERAL COURT OF MASSACHUSETTS
STATE HOUSE, BOSTON 02133-1053

September 12, 2013

Ms. Mary Colligan
Assistant Regional Administrator for Protected Resources
NMFS Northeast Region
55 Great Republic Drive
Gloucester, MA 01930

Attention: Large Whale Proposed Rule

To Whom It May Concern:

We are writing to express our concern about the suggested changes to the northeast region outlined in the Atlantic Large Whale Take Reduction Plan Regulations proposed rule. In particular, we are requesting that the National Marine Fisheries Service (NMFS) conduct a study to determine the economic impact the northeast expansion would have on the fishing industry in and around Cape Cod Bay.

Under the proposed rule, NMFS will institute prohibitions to decrease the number of vertical buoy lines used by fishermen by banning single traps and requiring an increase in the number of traps per line. Increasing the number of traps per line will have a devastating impact on small vessels. Many small vessels in Massachusetts fish in state waters and may only have one to two fishermen onboard to collect their catch. An increase in the number of traps will result in a catch that is too heavy for a single person to haul in which may cause serious injury to the fishermen and to the vessel. As a consequence of this, small vessel fishermen may be forced to close up shop due to financial constraints. Single traps may cause harm to whales, but it is important to ask if buoys lines holding more than one trap will ultimately create a situation where a whale is more at risk of entanglement and injury than if there was only one trap on a line.

We agree that it is important that we find alternatives to reduce the risks imposed on whales and other marine life in our waters, but it is equally important to take into consideration what the economic impact will be of certain proactive precautions. The purpose behind the proposed changes is to decrease or eliminate fixed fishing gear (which includes vertical buoy lines) that may entangle large whales. The proposal indicates that while whales may get entangled in fixed fishing gear, it is unknown what part of the gear is getting caught on whales swimming through certain waters. At this time, we believe, there are too many unanswered questions that need to be further investigated before expanding and implementing new policies regarding single trap lines along the coast of Massachusetts.

As a result, we are respectfully urging you to reconsider the northeast region section of the proposed rule until there is better information regarding what part of a trap line is entangling large whales, and what the economic impact of such changes will have on the fishing industry. Thank you for your consideration on this important issue for Massachusetts lobstermen.

Sincerely,

Senator Bruce Tarr
Co-Chair, Massachusetts Coastal Caucus

Representative James Cantwell
Co-Chair, Massachusetts Coastal Caucus

Senator Daniel Wolf

Representative Sarah Peake

Representative Timothy Madden

Senator Michael Moore

Senator Michael Rodrigues

Representative Josh Cutler

Representative Geoff Diehl

Representative James Dwyer

Representative Shaunna O'Connell

Senator Robert Hedlund

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September 16, 2013

Mary Colligan
Assistant Regional Administrator for Protected Resources
NOAA Fisheries Northeast Region
55 Great Republic Drive
Gloucester, MA 01930

Attn: Large Whale Proposed Rule

Dear Ms. Colligan:

Thank you for the opportunity to comment on the proposed *Taking of Marine Mammals Incidental to Commercial Fishing Operations* rule, which is part of the *Atlantic Large Whale Take Reduction Plan Regulations*. The Island Institute supports the adoption of a rule that recognizes the operational diversity in the fisheries implicated by the rule, and appreciates the efforts made to date that ensure that the requirements in the Proposed Rule recognize the very real operational, safety, and economic concerns of the fishing industry.

The Island Institute is a community development organization that works to sustain Maine's year-round island and remote coastal communities. As an organization, we are concerned about many aspects of sustainability, including how changes in fishing regulations impact the communities we work with. As such, we have a number of concerns with the Proposed Rule, which are detailed below.

- Trawling Up

We are concerned that the trawling-up requirement will have unintended consequences for Maine's offshore island communities. We strongly believe that establishing an exemption line around the islands outside of the current exemption would ease the negative impacts of this requirement.

Combining traps into trawls or trawling up presents a significant safety risk to fishermen who fish near the shore. While trawling up may be appropriate for those fishing offshore in larger boats, the requirement to trawl up around offshore islands would significantly increase the risk associated with fishing out of skiffs and smaller boats. Many of those who traditionally fish around the islands outside of the exemption line – the aging fishermen, and those just starting out in the lobster fishery – have little margin for error along the rocky bottom in these areas. If they place a trap and it becomes hung up, the safety risk to them and their crew increases along with the chance of losing valuable gear and escalating their operational costs. .

In particular, we oppose the increase in trawling-up requirements for the waters around Mount Desert Rock. The area around the island is rocky and much of the fishing activity occurs in the small spaces between rocks. Attempting to fish larger trawls in this area would likely exacerbate the safety hazards and increase the operational expenses for local fishermen.

If these areas become more difficult and dangerous to fish due to the trawling-up requirement, aging fishermen who are in the process of downsizing their fishing operation, but who are still reliant on fishing-generated income, may have to exit the fishery prematurely, negatively affecting the already fragile economies of their island communities. .

- Area Closures

The Island Institute opposes the Jefferies Ledge seasonal closure. The year-round island communities of Chebeague, Cliff and Long islands fish in and around Jefferies Ledge during the proposed seasonal closure. Based on our work with fishermen in the siting of offshore wind energy and the Mapping Working Waters project, we believe that the closed area will merely shift effort to areas outside of the closed area. In particular, fishing activity will likely increase along the edge of the closed area, mitigating any benefit seen in the co-occurrence model. This phenomenon can be seen in the area around Monhegan Island, where the community has established a conservation zone with a limited season. Fishermen from mainland ports fish heavily around the edge of the conservation zone, increasing competition for Monhegan fishermen.

- Gear Marking

We oppose any increase to gear marking requirements, particularly, within the exemption line, because the requirements impose a high cost to fishermen with little to no direct conservation benefit. Many of the provisions in the proposed rule reduce the number of endlines in the water and provide a direct conservation benefit to whales by reducing the risk of entanglement. However, the gear marking requirements do not lead to an immediate reduction in risk of entanglements nor do they influence the co-occurrence model. The proposed gear marking requirements do not help to identify the location where an entanglement occurred; they would only establish where the gear was fished. Operationally, the proposed requirement makes shifting gear difficult, particularly for fishermen who fish in areas that require different marking.

- Implementation date

The rule proposes an implementation date in the fall of 2014. We believe that a midseason implementation date is not practical given the adjustments to gear that would be required. To effectively implement the requirements of the proposed rule, many fishermen would need to do additional work to their gear. This gear work typically happens in the winter when many are fishing fewer days or their gear is completely out of the water. If fishermen know the required changes for the following season in the late fall, they can make gear adjustments during the winter. A June implementation date would be significantly more appropriate and feasible.

Thank you again for the opportunity to comment.

Sincerely,



Nick Battista
Marine Programs Director

Animal Welfare Institute
900 Pennsylvania Avenue, SE, Washington, DC 20003
awionline.org phone: (202) 337-2332 fax: (202) 446-2131

September 16, 2013

BY ELECTRONIC MAIL
Submitted via http://www.regulations.gov

Attn: Large Whale Proposed Rule
NOAA-NMFS-2013-0095
Ms. Mary Colligan
Assistant Regional Administrator for Protected Resources
NMFS Northeast Region
66 Great Republic Dr.
Gloucester, MA 01930

RE: Comments on Proposed Rule Regarding Atlantic Large Whale Take Reduction Plan Regulations (NOAA Identifier "NOAA-NMFS-2013-0095")

Dear Ms. Colligan:

The Animal Welfare Institute ("AWI") submits these comments in response to National Marine Fisheries Service's ("NMFS") proposed revisions to the Atlantic Large Whale Take Reduction Plan ("ALWTRP"). While AWI supports NMFS' attempt to reduce the risk of death and serious injury to large Atlantic whales, the proposed revision fails to sufficiently achieve the plan's stated purpose: to reduce the incidental mortality and serious injury to the endangered humpback, fin, and North Atlantic right whales (hereafter collectively referred to as "baleen whale species") in commercial trap/pot and gillnet fisheries.

This letter provides reasons for AWI's support of parts of proposed Alternative Five and additional recommendations to address remaining inadequacies in the NMFS' final rule.

I. Background on Entanglement Issues with Large Atlantic Whales

Entanglement in fishing gear remains one of the leading causes of death for the endangered baleen whale species.[1] There are a number of entanglement scenarios that lead to death in Atlantic large whales, which include drowning, emaciation, increased drag, infection and severe tissue damage.[2] Death is commonly prolonged for up to two years as an entangled whale endures starvation, due to reduction in feeding capacity; exhaustion caused by increased drag; infection; and severe tissue damage caused by rope lacerations known to dissect sheets of

[1] Julie M. Van der Hoop et. al., *Assessment of Management to Mitigate Anthropogenic Effects on Large Whales*, 27 CONSERVATION BIOLOGY 121, 125 (2012), *available at* http://onlinelibrary.wiley.com/doi/10.1111/j.1523-1739.2012.01934.x/pdf.
[2] Id.

blubber 1.5m thick.[3] Such mortality and animal welfare issues are not adequately addressed in the ALWTRP revisions.

The Northern right whales, humpback whales, and fin whales that the ALWTRP seeks to protect are all listed as endangered under the Endangered Species Act (ESA) and are considered strategic stocks under the Marine Mammal Protection Act.[4] With a population size of approximately 444, the western North Atlantic right whale is among the rarest cetaceans in the world.[5] With the anthropogenic threats to humpback and fin whales, these species are also at risk with estimated populations around 823 and 2,817 in the Northeast Atlantic, respectively.[6]

Congress enacted the ESA with a clear intent to "halt and reverse the trend toward species extinction, *whatever the cost."*[7] As such, section 7 of the ESA requires federal agencies to insure that any action, whether direct or indirect, is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species.[8] In making this determination, the agency must utilize the best scientific and commercial data available[9] to evaluate the current status of the species or habitat, the effects of the action, and the cumulative effects.[10]

There are definite benefits to the proposed rule. The closing of two areas to fishing in the Northeast is a positive step forward because there will be fewer opportunities for whales to be entangled. Additionally, reducing the length of vertical lines in the water helps lower the risk to the baleen whale species.

But ultimately, the proposed mitigation plan is unfortunately a temporary measure intended to cover up, but not resolve, problems cause by entanglement that affect three endangered Atlantic large whales, in addition to other endangered and threatened species. For example, the proposed rule permits a high number of whales (particularly North Atlantic right whales) to be taken beyond their potential biological removal levels. Additionally, the plan has varying requirements for different gear types and fails to consider the effects of the proposed action on sea turtles, and the cumulative effects of expanding fisheries, and offshore wind energy development.

Overall, the plan is a step in the right direction, but there is much to be improved upon to reduce the impact of entanglement on the baleen whale species.

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[3] Id.
[4] National Marine Fisheries Service *Draft Environmental Impact Statement for Amending the Atlantic Large Whale Take Reduction Pla*n: Vertical Line Rule § 1.1, July 2013.
[5] Id.
[6] Id.
[7] *Tennessee Valley Auth. V. Hill*, 437 U.S. 153, 184 (1978).
[8] 50 C.F.R. § 402.02
[9] 16 U.S.C. § 1536(a)(2)
[10] 50 C.F.R. § 402.14(g)(2)-(3)

II. Exempted Areas

The ALWTRP contains several flaws that could be of consequence to marine species.

First, it fails to account for the continued diminution of the baleen whale species by exempting waters that they frequent. Particularly concerning is the exemption of the area the most endangered of the whales,[11] the North Atlantic right whale, use. Exempted areas currently include the coast of Maine and the proposed revisions seek to expand the exemption to include the coast of New Hampshire.

Although the revisions propose to include two areas within the gulf of Maine (i.e., Jeffreys Ledge and Jordan Basin), exempting an entire coastline is not in the best interest of the whales covered by the ALWTRP. Exempting waters merely because whales have not been visually sighted in those waters will not reduce the risk of entanglement to whales, especially the North Atlantic right whales and humpback whales. As it is explained further below, the agency has not used the best available science in this instance to better understand the feeding and migration habits of the baleen whale species.[12] These habits may change in response to climate change and ecosystem alterations which also should have been taken into account.[13] Ideally, wildlife management should not merely react to problems, but should also anticipate future trends.[14]

In addition to failing to reduce the risk to the baleen whale species, NMFS has recognized that the proposed extension of exempted areas along the cost will increase risk to sea turtles, particularly endangered leatherback sea turtles. Leatherbacks prefer shallow waters and will swim inshore to feed thereby increasing their susceptibility to bycatch. Bycatch from fisheries is one of the leading causes of mortality for leatherbacks.[15] As the DEIS acknowledges, a large number of boats already fish in exempted waters. Exempting certain places these species at risk in addition to whales.

III. Addressing the Threat of Gillnet Gear & Reducing Risk

In 2003 and 2009, NMFS and the Atlantic Large Whale Take Reduction Team ("Team") agreed to prioritize risk management to address the threat of gillnets and associated gear to imperiled

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[11] National Oceanic and Atmospheric Administration, *North Atlantic Right Whales*, NOAA OFFICE OF PROTECTED RESOURCES, http://www.nmfs.noaa.gov/pr/species/mammals/cetaceans/rightwhale_northatlantic.htm#population (updated Aug. 7, 2013) (There are thought to only be around 400 individual right whales).
[12] Michael Moore, *Whither the North Atlantic Right Whale?,* 43 OCEANUS MAGAZINE, Dec. 2004, *available at* http://www.whoi.edu/oceanus/viewArticle.do?id=2482.
[13] Amy Nevala, *To Find Whales, Follow Their Food*, OCEANUS MAGAZINE (Jan. 20, 2006), http://www.whoi.edu/oceanus/viewArticle.do?id=9213.
[14] Stephen M. Dawson, *Modifying Gillnets to Reduce Entanglement of Cetaceans*, 7 MARINE MAMMAL SCIENCE 274, 279 (1991), *available at* http://www.cetaceanbycatch.org/Papers/dawso91b.pdf.
[15] National Oceanic and Atmospheric Administration, *Leatherback Turtles*, NOAA OFFICE OF PROTECTED RESOURCES, http://www.nmfs.noaa.gov/pr/species/turtles/leatherback.htm#population (updated Mar. 4, 2013).

species. Their first task was to tackle reducing risk associated with ground lines[16] and the "risk associated with vertical lines in commercial trap/pot and sink gillnet gear."[17]

In the Atlantic, gillnets are most commonly employed in the mid-Atlantic region. Unfortunately, this mostly impacts the endangered humpback whales, whose population numbers approximately 823 in the Northeast Atlantic.[18] Humpbacks more commonly get entangled in gillnet gear, since the mid-Atlantic is a seasonal high-use area for them.[19]

Although gillnet entrapment seems to occur in all regions of the globe where gillnets are employed,[20] the take reduction plan is entirely lacking in alterations to address risks associating with gillnets. In practice, little has been done to address this issue, other than slightly altering gear marking requirements.

Unfortunately, there are also no uniform requirements for gear in the ALTWTRP. This is of most concern for the Southeastern US waters where whales tend to calve. In particular, the preferred alternative has created a mix of requirements concerning breaking strengths and weak links for Southeastern waters. The three different requirements for weak links and breaking strengths of line in the state waters of Georgia, South Carolina, and Florida were made without regard to critical habitat boundaries or known right whale calving areas. In fact, some of the proposed restrictions simply mandate the status quo, which is unacceptable.

Having a multitude of different breaking strengths and weak links in waters that overlap is difficult to enforce. The ALWTRP is already considered largely ineffective,[21] and, consequently, keeping track of the varying breaking strengths and weak links will only exacerbate deficiencies inherent to the ALWTRP while doing little to ultimately reduce risks to large whales. In fact, it is a real possibility that a whale calf could enter a management area where had stronger line strength is required only to become entangled without the likelihood of escape. Whale calves are especially vulnerable to entanglement as they have a much harder time breaking free.

Ultimately, the best choice for the baleen whale species is to have uniform breaking strength and weak link requirements throughout the Southeast. Such requirements should be mandated until more certainty emerges about the temporal and spatial distribution of the baleen whale species and the number of entanglements is actually reduced. This is not only to simplify enforcement,

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[16] Atlantic Large Whale Take Reduction Plan Regulations, 78 Fed. Reg. 42,654, 42,655 (proposed Jul. 16, 2013) (to be codified at 50 C.F.R. pt. 229).
[17] *Id*.
[18] GORDON T. WARING ET. AL., U.S. ATLANTIC AND GULF OF MEXICO MARINE MAMMAL STOCK ASSESSMENTS-2012 19 (2013), *available at* http://www.nmfs.noaa.gov/pr/sars/pdf/ao2012.pdf.
[19]
[20] Michael J. Moore et. al., *Criteria and Case Definitions for Serious Injury and Death of Pinnipeds and Cetaceans Caused By Anthropogenic Trauma*, 103 DISEASES OF AQUATIC ORGANISMS 229, 235 (2013), *available at* http://www.int-res.com/articles/dao_oa/d103p229.pdf.
[21] Michael J. Moore, *supra* note 2 at 3.

but also to ensure the whales are receiving the utmost protection that they should be as endangered species. NOAA should require that the lowest breaking strengths and weak links are to be utilized throughout the Southeast. Since, as noted above, whales are still getting entangled throughout the Atlantic, establishing variable requirements for gear requirements in management areas will do nothing to reduce those entanglements.

In addition to line strengths, gear markings should be improved. New marks will only take effect in two areas: Maine/New Hampshire and the northern part of the Southeastern U.S., thus providing NOAA with information regarding occupied whale habitat, feeding areas, and where fishing gear is causing the greatest problems. Having better markings on gear could provide NOAA insight about how to improve the ALWTRP and eliminate the risk of entanglement to the baleen whale species.

Finally, improvements in monitoring and enforcement of these requirements will help ensure that the ALWTRP is working at full capacity to reduce entanglements. Specifically, fisheries should be increasingly monitored on a day-to-day basis to better understand what is happening and where. This will allow NMFS to target certain fisheries or management areas and ensure that the regulations employed are the most effective for that particular area. This can be achieved in a few ways, including increasing the frequency of observation presence on fishing boats or through the possible use of video surveillance.[22] There needs to be a general improvement in data collection, which will lead to stricter enforcement and greater protections for the baleen whale species.

IV. Best Available Science – Alternative forms of Technology

The co-occurrence model, as used by the NMFS to identify risk-prone areas, is not an accurate method to detect whales because it relies solely on visual sightings. Because of the inherent inaccuracies of visual sightings, it is very possible that there are other important feeding areas of which we are unaware.[23]

Alternative technology exists to detect whales. For example, in Alaska, NMFS utilizes not only visual sightings, but also passive sonobuoys to detect areas that Pacific right whales frequent.[24] These acoustic readings, in conjunction with visual sightings, improve the ability to identify those areas where potential conflicts between whales and fishing operations may exist. This method of detection would be particularly effective for large Atlantic whales because so much is

[22] LAETITIA NUNNY, THE PRICE OF FISH: A REVIEW OF CETACEAN BYCATCH IN FISHERIES IN THE NORTH-EAST ATLANTIC 44 (2011), *available at* http://www.wdcs.org/submissions_bin/price_of_fish.pdf. (These suggestions were made internationally for dolphins and porpoises, but they can easily be applied to large Atlantic whales).
[23] Michael Moore, *Whither the North Atlantic Right Whale?,* 43 OCEANUS MAGAZINE, Dec. 2004, *available at* http://www.whoi.edu/oceanus/viewArticle.do?id=2482.
[24] P.R. Wade et. al., *Rare Detections of North Pacific Right Whales in the Gulf of Alaska, With Observations of their Potential Prey*, 13 ENDANGERED SPECIES RESEARCH 99, 102 (2011), *available at* http://www.int-res.com/articles/esr_oa/n013p099.pdf

unknown about the feeding and mating habits of the whales protected under the ALWTRP. With such new information, it may facilitate a reduction in the harm posed to the baleen whale species.

V. Conclusion

The purpose of the ALWTRP is to protect the North Atlantic right whale, humpback whale, and fin whale; three large whales in danger of extinction throughout their Atlantic range. While the revised plan has some benefits, it fails to address: the need for better technology to detect high risk areas and better understand whales' migration, feeding, and breeding habits; removal of exempted waters to ensure the utmost protection of all the whales; increased requirements for gillnets to reduce the risk to humpback whales; and uniformity in the line and link strength in Southeast water requirements to ensure that whales receive the full protections that they require. Furthermore, because entanglement not only kills whales, but also causes them great suffering, more must be done to protect these endangered species.

Consequently, AWI respectfully requests the above deficiencies be considered in this decision-making process and addressed in the final ALWTRP. The whales covered under the ALWTRP, all endangered species, deserve greater protections than they are currently afforded under the existing ALWTRP.

Thank you in advance for providing this opportunity to comment on this proposed rule and for considering these comments. Please send any future correspondence or information about this proposed rule to: Tara Zuardo, Wildlife Attorney, Animal Welfare Institute, 900 Pennsylvania Ave., SE, Washington, DC 20003.

Sincerely,

Tara Zuardo

Tara Zuardo
Wildlife Attorney

New Hampshire
Fish and Game Department

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September 12, 2013

Mary Colligan
Assistant Regional Administrator for Protected Resources
NMFS Northeast Region
55 Great Republic Drive
Gloucester, MA 01930

Reference: NOAA-NMFS-2013-0095 – Large Whale Proposed Rule

Dear Ms. Colligan,

The New Hampshire Fish and Game Department (NHFGD) would like to express general support for Alternative 6 of the proposed Draft Environmental Impact Statement for Amending the Atlantic Large Whale Take Reduction Plan: Vertical Line Rule (DEIS) and the associated proposed federal rule (RIN 0648-BC90) with a couple exceptions.

The NHFGD and New Hampshire lobster fishing industry (industry) supports the exemption of specific trap per trawl requirements in New Hampshire waters from the amended Atlantic Large Whale Take Reduction Plan's (ALWTRP) proposed rules. This exemption is warranted because of the low co-occurrence of vertical lines and whales within state waters.

Additionally, NHFGD supports the trap per trawl requirements of Alternative 6 in federal waters (3-12 miles = 10 trap trawls and 12+ miles = 20 trap trawls). However, we encourage you to include a provision to allow equivalency strategies to reduced trap per trawls if fishing fewer traps than the maximum allowed under the individual's/vessel's lobster license/permit. This consideration was requested by NHFGD while commenting on the vertical line reduction proposals received by NOAA Fisheries during or after the January 2012 Atlantic Large Whale Take Reduction Team meeting (Attachment 1). There are industry members that would like to continue individual fishing practices and are willing to reduce their number of traps fished to be able to fish fewer traps per trawls. This recommendation will take into consideration the safety concerns, local fishing practices, etc. while still appropriate to proposed rules in reducing vertical line and whale interactions. The NHFGD is willing to work through an equivalency program such as a trap tag return program to accommodate the industry in lowering the number of traps they fish in federal waters to fish less traps per trawl.

The NHFGD is opposed to the proposed Alternatives that include seasonal closures to lobster pot/trap fishing in the areas of Jeffreys Ledge and Jordan Basin. The Take Reduction Team agreed to make decisions based on a co-occurrence model in reducing whale interactions with vertical lines and not concentrate on "hot spots". There is too much uncertainty with displacement of gear out of the closed areas around "hot spots". These uncertainties include will the gear: be removed or displaced to alternative fishing ground, surround the closure areas creating a wall and become a heavy co-occurrence area where none currently exists, produce a gear conflict area, etc. There is only a small percent difference of less than 4% between the total percent reduction of co-occurrence in Alternatives 4 and 5 which include the seasonal closures and Alternative 6 (40.8%, 42%, and 38.3%, respectively) as shown in Exhibit 1-5 of the DEIS. The NHFGD would like the NOAA Fisheries to evaluate the actual changes in co-occurrence interaction that occur with the implementation of a reduction in vertical lines through minimum trap per

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trawls first before considering instituting seasonal closures or other additional rules.

Considering Exhibit 1-7 of the DEIS, there are many key communities affected by the proposed ALWTRP modifications between Maine and Rhode Island. These proposed regulations along with the recent groundfish regulations will further compound fishing communities and infrastructure already imperiled. This is another reason to conduct and evaluate one measure to reduce interactions at a time such as instituting a minimum trap per trawl rule to reduce vertical line interactions with whales.

The new proposed requirements for gear marking will become difficult for the industry that fishes in both exempted state waters and federal waters. For New Hampshire the industry gear marking coloration of blue and red will be imposed for all fishing in state exempt waters. The industry will be changing out vertical lines or individual coloration on a regular basis as they fish between both zones. We don't see the utility of having a different coloration in areas that have already proven to be a very low co-occurrence interaction zone with whales and vertical lines through modeling. If there is a warranted need to have a different coloration scheme for exempted waters, NHFGD would request a different color scheme from Maine's exempted waters.

The NHFGD proposes that any increased gear marking requirements be suspended until after NOAA Fisheries is able to develop more area definitive scenarios that will help identify when and where whales are becoming entangled in gear in high co-occurrence areas. Vertical line marking doesn't inform whale researchers where the entanglement occurred when expanding the single red color scenario for the entire Gulf of Maine, therefore will not increase the degree of accuracy needed for analysis to further reduce the risk of entanglements. It may show the type of gear that the whale was entangled with (lobster gear vs. gill net) but not where or when.

Finally, the NHFGD would recommend not implementing the amended Plan until June 1 of the fishing year as this will coincide with the trap tag season (June 1) and gear will likely be set in either federal or state waters and not in a state of flux between nearshore and offshore fishing seasons.

Thank you for the opportunity to comment and feel free to contact us if we can be of assistance in developing an equivalency program for reducing a trap per trawl option in federal waters.

Sincerely,



Douglas E. Grout
Chief of Marine Fisheries

Enclosure

cc: Glenn Normandeau, Executive Director
Cheri Patterson, Supervisor of Marine Programs
Bob Nudd, ALWTR Team member
Eric Anderson, NHCFA

ATTACHMENT 1

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April 27, 2012

Kate Swails, ALWTRP Coordinator
National Marine fisheries Service
Northeast Regional Office
55 Great Republic Drive
Gloucester, MA 01930

Dear Ms. Swails,

The New Hampshire Fish and Game Department (NHFGD) would like to comment on the vertical line reduction proposals received by NOAA Fisheries (NMFS) during or after the January 2012 Atlantic Large Whale Take Reduction Team (ALWTRT) meeting.

First, during the November/December 2010 ALWTRT Northeast Subgroup meeting the members unanimously agreed that the co-occurrence model should serve as the primary platform for developing and analyzing a vertical line reduction management strategy. As such the States and NMFS drafted vertical line reduction proposals based on the co-occurrence model platform. While there are areas that appear to have seasonally high whale distributions according to the North Atlantic Right Whale Consortium Sightings Database, they may not coincide in areas where there are high vertical line densities with lobster gear. Therefore, the NHFGD believes proposals drafted with a management reduction strategy that is based on seasonal area closures should be very cautiously considered.

Those proposals that only consider seasonal area closures based on sightings data may not be fully considering gear displacement or additional gear conflicts. The industry may only move gear out to the perimeter of the proposed area closures or produce areas with higher vertical line density elsewhere, thereby not reducing whale/vertical line interactions. Additionally, the analysis conducted by NMFS indicates little or no significant change to the annual percent change in the number of vertical lines deployed with the "Closure Area" proposals to NMFS's vertical line reduction proposal.

Also during the November/December 2010 ALWTRT Northeast Subgroup meeting, fisheries representatives strongly advocated for an approach that would enable States to develop vertical line reduction strategies tailored for specific geographies and fisheries. These equivalency strategies, broadly supported by Subgroup members, would be developed to provide a level of vertical line reductions for consideration by the full ALWTRT and NMFS rather than insisting on a blanket formula (i.e., single buoy lines or minimum trap per trawl requirements) for those areas identified as high risk. This approach was endorsed as a way to tap into local initiative, bring affected parties together in a collaborative discussion, build incentives and buy-in for any eventual changes in fishery practices, and avoid top-down actions that may be unsafe or uneconomical for vertical line fisheries.

The proposals that the States developed largely address this approach. Each State worked with their industry to either produce a reduction in vertical lines, prove the interaction risk is already reduced due to local fishing practices, show future vertical line reductions due to

attrition, or instituting regulations that will reduce interactions during high co-occurrence months. These efforts produced variable percentages in changes of vertical lines deployed. Each of the State's proposals, combined with NMFS's, achieved a minimum of a twenty-four percent change in reduction of vertical lines from the baseline; resulting in a twenty-seven percent reduced co-occurrence score in the northeast region (see Attachment 1). However, these percentages are lower than what will actually be achieved as Maine plans on instituting its second proposal.

The NHFGD has provided the necessary data and shown that during high risk co-occurrence months, vertical lines in state waters have already been reduced due to the timing of the season or the industry is already primarily fishing more traps/trawl than NMFS has proposed. In the absence of a defined goal of the number of vertical lines to be reduced, the proposals received by the northeast states and NMFS have achieved management measures to reduce vertical line interactions with Atlantic large whales, therefore the NHFGD supports all the State's preferred proposals.

In addition, the NHFGD would strongly support an allowance for additional proposed equivalency strategies for harvesters that may not be able to fish the amount of required traps per trawl in a particular area in the federal rule. Additional equivalency measures can be developed that allow for a variety of fishing practices that may maintain or further reduce the required number of vertical lines without compromising a harvester's safety and remaining economically viable with current fishing practices.

Thank you for the opportunity to comment and if you have further questions or concerns please contact Cheri Patterson, ALWTRT state representative.

Sincerely,



Douglas E. Grout
Chief of Marine Division

cc: Glenn Normandeau
Cheri Patterson

Attachment 1: Summary of impacts of all vertical line reduction proposals presented by NOAA Fisheries, April 2012.

Summary of Impacts

Proposal	NMFS	ME #1	ME #2	NH	MA	RI	Jordan Basin	CCB to GSC	CCB (Young)	Jeffreys	GSC Sliver	NORTHEAST REGION		COASTWIDE	
												% Change in VL	% Change in Co-Oc.	% Change in VL	% Change in Co-Oc.
NMFS	X											-36.1%	-34.6%	-34.2%	-34.3%
ME #1	X	X										-29.0%	-34.6%	-27.5%	-34.3%
ME #2	X		X									-30.4%	-36.0%	-28.8%	-35.7%
NH	X			X								-35.9%	-34.5%	-34.0%	-34.2%
MA	X				X							-31.2%	-26.8%	-29.6%	-26.6%
RI	X					X						-37.2%	-35.0%	-35.2%	-34.8%
Jordan Basin (Kraus)	X						X					-36.1%	-34.7%	-34.2%	-34.4%
CCB to GSC (Kraus)	X							X				-36.1%	-34.8%	-34.2%	-34.6%
CCB (Young)	X								X			-36.9%	-37.0%	-35.0%	-36.7%
Jeffreys (Young)	X									X		-36.0%	-34.7%	-34.1%	-34.4%
GSC Sliver (Young)	X										X	-36.1%	-34.6%	-34.2%	-34.3%
NMFS + All State	X	X	X	X	X	X						-24.1%	-27.0%	-22.8%	-26.8%
NMFS + Kraus et al.	X						X	X				-36.1%	-34.9%	-34.2%	-34.7%
NMFS + Young et al.	X								X	X	X	-36.9%	-37.2%	-35.0%	-36.9%

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Paul J. Diodati
Director

Deval Patrick
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Commissioner

September 13, 2013

Mary Colligan
Assistant Regional Administrator for Protected Resources
National Marine Fisheries Service
Northeast Region Regional Office
55 Great Republic Drive
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ATTN: Large Whale Proposed Rule (NOAA-NMFS-2013-0095)

Dear Ms. Colligan,

Please accept these comments from the Massachusetts Division of Marine Fisheries (*MarineFisheries*) concerning the proposed rules of the Atlantic Large Whale Take Reduction Plan (ALWTRP) designed to reduce risk of entanglement with vertical lines.

We were pleased that National Marine Fisheries Service (NMFS) held three public hearings in the Commonwealth because of the regional differences in fixed gear fisheries that capitalize on the varied habitats in our Southern New England, Gulf of Maine, and east of Cape Cod regions. More than any other state partner involved in the Take Reduction Team (TRT) process, Massachusetts is responsible for managing wide-ranging fleets that are as distinct and varied as the habitats they utilize.

Stakeholders provided some honest and candid testimony on the proposed rule. Much of their comments will be echoed in this comment letter.

We are respectful of the Service's mandate and goals to conserve large whales and reduce serious injuries and mortality, as well as the enormous amount of modeling effort that has been done. However, after careful review of the DEIS, and the comments received at the public meetings held in the state, we urge NMFS to substantially scale back the action in the final rule.

General Comments. As state partners on the TRT, we have acted as leaders on matters pertaining to large whale conservation. We have and we must continue to make intelligent proposals and smart decisions that allow the co-existence of endangered marine mammals and the legacy industries (fishing) that the nation cherishes.

We share NMFS' frustration in attempting to use past entanglements to prescribe future solutions when nearly all entanglement cases are documented as "unknown gear" or simply "rope." It is difficult to solve the entanglement problem, given the wide-ranging annual migrations of these whales, the inter-annual variability of habitat use, the non-existent data on the spatial-temporal distribution and configurations of fishing gear, and an inadequate gear marking system.

Despite inadequate data on whales and gear, the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA) still force us to devise solutions to accomplish their stated conservation goals. However, we must ensure that the solutions are logical, likely to succeed, economical, and do not put fishermen at risk with unintended consequences.

In Massachusetts an abundance of whales are enjoyed by the general public and its support businesses in the whale watching community. The Division of Marine Fisheries has also enjoyed a longstanding state/federal partnership to conserve endangered whales that features a successful and high profile disentanglement program at the Provincetown Center for Coastal Studies (PCCS). This program is jointly funded by NMFS and the Massachusetts Environmental Trust.

With an abundance of whales off our coast, a vibrant whale watch industry, and evolving whale protection regulations levied on fixed gear fisheries for the past 17 years, some fishing industry members have wrongly concluded that their government cares more about whale conservation than the fate of the commercial fishing industry and its individual members. Compounding this sentiment are the well-publicized struggles of the declining commercial groundfish fisheries which have resulted in many fishermen being displaced to gears that are now proposed to be further regulated. Finally, the industry's views are also colored by the government's management actions in the last decade that have resulted in the loss of many owner/operators and small scale fishing businesses in favor of more corporate and larger scale business models. We urge you to be mindful of unintended consequences that might take us down that path for trap/pot fisheries.

We concede that the number of serious injuries and mortalities tallied against the allowed Potential Biological Removal (PBR) is being exceeded. However, we remind NMFS that PBR is calculated as all anthropogenic mortality and includes mortality across international boundaries, ship strikes, and entanglements in many fishing gears that are not being targeted by the proposed rule.

We have serious concerns about the proposed rule put forth by the Agency and believe it lacks components that are vital to achieving the goal of reducing entanglement risk. <u>The proposed rule does not address issues of reporting, latent effort, or emerging fisheries, all of which could have significant impact on the reduction of risk and monitoring of fisheries that are prosecuted in whale habitats</u>.

In the following comments we will elaborate on our support for the enhanced buoy line marking, support for a state-managed closure of the state waters portion of Cape Cod Bay Critical Habitat, and support for other strategies that NMFS chose not to propose in the rule. We urge NMFS to abandon most of the strategies captured in the alternatives, and to task the agencies responsible for trap/pot fisheries management (i.e., states, the Atlantic States Marine Fisheries Commission, and NMFS Sustainable Fisheries) with meeting a measureable and scientifically justified goal for vertical line reductions. *MarineFisheries* would support a sound plan for large whale conservation with measurable objectives that are applied with equity across all jurisdictions. We feel the proposed rules fall far short of this and as such do not see eye-to-eye with the Service.

Trawling up mandates. The core of the proposed rule is a strategy to reduce vertical line risk by forcing current and future fishermen to abide by "trawling up" requirements. We cannot support this strategy. The elimination of single traps will needlessly reconfigure the inshore small boat fisheries while providing little benefit of risk reduction.

In Lobster Management Area (LMA) 1, commercial permits are allowed to fish up to 800 traps, but many do not. Some lobstermen choose to fish at a much reduced scale and many fish single traps especially close to shore in rocky areas where floating groundline was once deployed but banned by the Commonwealth a

decade ago to protect whales. In this area, nearly all single trap fishing occurs almost exclusively close to shore conducted by small boats (less than 25 ft.) and operated by fishermen in small-scale businesses. These fishermen remain close to shore in these undersized vessels and choose to fish single traps for safety reasons as traps strung together require additional deck space and extra hauling power in the event of traps becoming entangled with other traps. We have been told by some small scale operators that if forced to fish trawls, they will either stop fishing for safety reasons or reluctantly replace the vessel with a larger one to accommodate trawls. To pay the expenses of a larger vessel, many will increase the number of overall traps resulting in an increase in buoy lines. Moreover the deployed ropes will be heavier to accommodate the extra gear to be hauled and the target fishing areas will likely shift further offshore. These unintended consequences would have a negative effect on vertical line reduction and entanglement risk.

In the Outer Cape Cod and LMA 2 (Southern New England), lobster permit holders are managed under a different system that depends on strict, individual history-based trap limits and transferable trap-fishing rights among eligible permit holders. In these areas, most permit holders have a low trap allocation that is not economically conducive to large vessel operations.

Trap allocations are being further reduced in these areas. Upon transfer of a lobster permit or a trap allocation, 10% of the traps are retired. Many among the fleet are somewhat "trap starved" and are attempting to make a living by efficiently deploying low number of traps. They have insisted that the single trap scheme is the most economically efficient because it allows them to maintain small vessels with limited deck space and low hauling power while surgically deploying their limited traps on the most productive lobster bottom. This "old school" approach is a conservation benefit for lobsters and their inshore activities do not usually coincide with large whales.

The Massachusetts fish pot and whelk pot fisheries in Southern New England are another example of fisheries being managed as small-scale operations that could be at risk from a trawl mandate. Trap limits are extremely low: 200 traps for sea bass potters, 200 traps for whelk potters, and 50 traps for scup potters. Due to these low limits, most are deploying single traps.

In Southern New England the trap allocations are to be reduced another 50% over the next six years with a goal of reducing actual traps fished by 25% under the interstate management plan. As a result we may see some further shift to small-scale lobster operations that will need to maximize their per-trap catch rate and will likely seek to deploy single traps as a result.

These inshore fishermen are small scale operators and include part-time fishermen such as those who hold a Massachusetts "student" lobster permit, limited to 25 traps set during summer months only. Large whales rarely frequent these inshore habitats during the summer months at the height of fishing. So there is much less actual co-occurrence with this gear than the model suggests. Reductions in vertical lines projected by the models at first glance are impressive: ranging from 29 to 38%. However, if nearly all the reduction in buoy lines occurs in the narrow and shallow inshore zone where whales rarely occur, then the benefits will fall far short of the projections. While we understand the calculation showing "co-occurrence reduction", we insist it is exaggerated because large whales rarely aggregate very close to shore where and when single traps are set.

Finally, the inshore zone is also fished by recreational lobstermen, yet the ALWTRP and the proposed rule do not apply to recreational lobster gear. This is problematic because under the proposed rule, commercial single pots would be banned from areas where recreational singles are also being fished, creating a double standard. It is not politically or financially feasible for Massachusetts to outlaw the use of single traps by recreational lobster fishery, nor logistically possible for recreational permit holders to fish trawls.

We are deeply concerned that the burden will fall mostly on the smallest scale fishing businesses and in places where whales do not aggregate. The intent is to make substantial strides in risk reduction but those strides will never materialize.

Conversely, the minimum trawl lengths proposed for federal waters will likely do little to reduce the number of vertical lines in that area. The DEIS doesn't partition out the change in co-occurrence or number of vertical lines by state vs. federal waters, but we are confident that fishermen are already using those trawl minimums and that little reduction in vertical lines will occur in federal waters because of that.

Based on the projected reductions in buoy lines and the reduction in the modeled "co-occurrence scores", this rule will not achieve the necessary reduction in serious injuries and mortalities to meet the PBR goals. But it will have severe negative consequences on discrete components of the northeast U.S lobster trap and fish pot fishermen.

The unintended consequences of the move to multiple trap trawls will be the deployment of heavier and stronger rope. At the Chatham meeting, we learned from one lobsterman that to satisfy the proposed rule he would be replacing his buoy lines with much heavier and stronger rope to withstand the rigors of hauling additional traps on the same trawl and to withstand the strain of hauling other fishermen's trawls that cross over his. He predicted this could be more injurious to an entangled whale.

At the 2011 TRT meeting, we learned from New England Aquarium staff that complexity of the entanglement does matter when forecasting serious injury and mortality. The single trap fishery in shallow water (hence short buoy lines) presents the least complex and heavy gear that whales may encounter. NMFS also appears to support that concept that singles pose less risk of complex entanglements, since the rule proposes to require singles in state and federal waters in the Southeast.

We also find it curious and counterintuitive that single pots would be *required* in state and federal waters off Florida and Georgia, based on the low weight of the gear and the simple configuration which would allegedly reduce the severity of entanglement for right whale calves; in contrast to the Northeast where singles are being banned because of risk. This lack of consistency does not make sense. If single pots are preferred in the Southeast to reduce the severity of entanglement, this should also apply in Northeast waters.

Need to improve data gathering for Federal Waters Fisheries. We believe NMFS must tackle gaps in the reporting and regulation of federal fixed gear fisheries. The Agency does not require reporting for those permit holders who fish with a federal lobster permit only, an oversight that makes it difficult to track or manage risk associated with that gear. According to NMFS data, 85% of these federal lobster-only permit holders land in the State of Maine, thus subjecting them to limited reporting requirements from the state perspective as well.

The lack of reporting makes it impossible for NMFS to assess the risk of entanglement to large whales or assess the effectiveness of the proposed vertical line reduction strategy. Without addressing these issues, any estimates of entanglement risk reduction are questionable at best, and estimating future risk levels will be imprecise and likely inaccurate.

We also strongly urge the Agency to address the risk associated with emerging pot fisheries such as Jonah crab and waved whelk, which are prosecuted with no restrictions through loop holes in the management system. There is no tracking of these fisheries, nor any limit on the number of vertical lines they can put in the water.

In addition, the impact of latent effort is not addressed in this proposed rule. There is significant latent effort in LMA 1, which could cancel out any reductions in vertical lines achieved through this rule. In the Massachusetts portion of LMA 1 the average number of traps fished is 350. Given the 800 pot limit, the number of traps fished and associated buoy lines could more than double. Similar problems exist in Maine and in federal waters portion of LMA 1; however, they remain undocumented because of the lack of catch and effort reporting system for fishermen licensed by Maine and/or by NMFS.

The result of inadequate catch and effort reporting is a shell game in which proposed rules can be targeted at jurisdictions that have good catch and effort data. These rules can be "projected" to have conservation benefits for large whales to meet the mandates of the ESA and the MMPA. Yet underlying issues of latent fishing effort and poor characterization of fixed fishing effort in U.S. territorial waters make these empty promises of conservation. Meanwhile the fishing industry bears the economic burden of this "false conservation" and will be understandably incredulous when we come back to them in five years asking for more.

Exemption Areas. We strongly oppose exempting New Hampshire state waters from the entire ALWTRP. There is no reason to put floating ground line back in the water column due to the risk it poses to large whales and other wildlife. Exemptions from the Proposed Rule were discussed with the TRT in the context of this vertical line rule only. It is inappropriate to exempt NH from the entire plan, and not consistent with what was represented during TRT discussions. We are not opposed to NH being exempt from the trawling up scenarios in the Proposed Rule since they have very little co-occurrence in their waters. However, NMFS should be equitable in the implementation of that standard.

Many portions of Massachusetts waters have no co-occurrence or only seasonal co-occurrence, yet a year-round, state-wide ban on single traps has been proposed by the Agency without justification for the double-standard. Portions of Massachusetts state waters that have no co-occurrence, specifically LMA 2 (Buzzards Bay, Vineyard Sound, and Nantucket Sound) and Cape Cod Bay during the summer months, should be exempt from the trawling up requirements. We emphatically do not support the requirement for trawling up or closures in areas with no co-occurrence.

Gear Marking. We do support the proposed increase in the size and frequency of colored markings on vertical lines, and the marking of vertical lines within the Maine Exempt Area. However, the spatial scale of the colored markings in the Proposed Rule is not sufficient. A second color should be added by LMA in Northern and Southern Nearshore and Inshore Trap/Pot Waters. The current system where RED represents all of New England nearshore waters is not specific enough to pinpoint the origin of entanglements in that area. A separate color should be added for each LMA. In addition, we do not support the use of ORANGE as the color for marking trap/pot gear in Southern Nearshore waters, as it is too similar to red, unless a secondary, unique color was associated with it to eliminate confusion.

Closed Areas. We support the use of closed areas to manage risk to right whales, particularly in locations where right whale abundance is predictable and the impacts to the industry are minimal. Cape Cod Bay during February – April is such a location. In recent years, this habitat has experienced the highest density and most predictable aggregation of right whales of any known habitat, at a time when fixed gear fisheries are minimal. *MarineFisheries* staff and PCCS researchers see more abandoned and lost gear in this area among right whales than actively fished gear.

We do not support a closure beyond the state waters portion of Cape Cod Bay Critical Habitat. *MarineFisheries* also requests that NMFS allow the Cape Cod Bay closure to be state managed so that refinements can be done more quickly and in response to the needs of the whales and the fishing industry.

We believe that any closure in the Cape Cod Bay area should be able to be lifted or altered due to the thorough surveillance program conducted in that area each year.

The DEIS notes that the impacts of closing Stellwagen Bank, Jeffreys Ledge, and Massachusetts Bay Restricted Area #1 would likely economically devastate nearly 200 lobster businesses (see DEIS 11-18). These impacts are severe and not equitably shared among the industry. Though the model attempts to surgically manage in areas of known high co-occurrence there is clearly ample risk beyond the areas proposed for additional measures. It is naïve to believe that if Alternatives 2 through 6 were enacted as proposed, the goals of take reduction would be met. Undoubtedly the march of additional closures would continue putting more fleets at risk in the future.

It should be noted that the outline of the Massachusetts Bay Restricted Area #1 includes a wedge of Nantucket Sound just west of Monomoy where no co-occurrence is documented and no whale has likely ever been. We do not support the use of Restricted Area #1 for this reason.

Moreover, NMFS should not adopt the closure on Jeffreys Ledge and Jordan Basin. We have reviewed the economic impacts of the closure in the DEIS (exhibit 8-5) and do not believe the cost of the closure is worth the minimal reduction in co-occurrence scores. Furthermore, we believe most fishermen will choose to continue to fish and be displaced to other areas where the buoy lines will become more concentrated. This will result in numerous gear conflicts with mobile gear and other fixed gear fisheries.

DEIS and the Alternatives. The analysis presented in the DEIS is lacking. It does not show the breakdown of potential vertical line or co-occurrence reductions across LMA or state versus federal waters. This is a significant and problematic oversight. It is difficult to evaluate the potential impact or benefits of the rule without that resolution.

Of additional concern is NMFS' dismissal of the viewpoint raised by Independent Reviewer #1. In the Biological Impacts section, NMFS briefly states that the independent reviews were favorable. This is in direct contrast to the viewpoint of Reviewer #1 who cites a number of problems with the model and states that the current version is not ready for use in management applications. We wholeheartedly agree that this model is not ready for use in fine-scale management of vertical lines.

The IEC Model. The data used in the model are not sufficient for the intended purpose. No credible data on gear configuration exists, so NMFS and IEC created estimates based on questionable methodology. *MarineFisheries* staff cautioned NMFS and IEC that the vertical line data we supplied lacked the appropriate spatial resolution to make robust estimates of co-occurrence. We also warned that it would not be appropriate to estimate the number of traps per trawl using the vertical line and number of traps fished data we provided. However these serious comments and concerns went unheeded.

Furthermore, the use of Right Whale Consortium data only for all whale species is also not appropriate. A great deal of humpback whale data was not included in the model because it resides outside the Consortium Database. The inclusion of this data would provide more balance and a complete picture of where humpbacks whales actually occur.

We feel that the IEC model is not ready to be used for management purposes given the lack of robust inputs and the lack of data from federally permitted lobster boats.

Summary

The proposed rule attempts to reduce vertical lines through the TRT process, despite inadequate data resulting in problems with the accuracy and validation of the model, the lack of connection to the lobster management process, and the highly inequitable proposed rule.

NMFS should endeavor to fill the data gaps immediately. Only then will it be possible to establish a scientifically valid and defensible reduction goal for buoy lines. We can then create a verifiable conservation plan and have a chance to gain the support and trust of the stakeholders to effectively reduce vertical lines in the water column. We do not believe the current proposals will have any meaningful effect on the level of entanglements. The lack of consistency in the proposed regulations across different jurisdictions is being done without sound reason or data to support.

We recommend that NMFS:

- Abandon the trawling up strategy;
- Focus on strategic closures for addressing risk to right whales, including closing those areas to gillnets;
- Improve the gear marking scheme by increasing the frequency, size, colors and spatial resolution associated with buoy line markings;
- Develop a target for appropriate vertical line reductions, and work through the lobster management system to achieve those reductions;
- Require reporting of catch, gear configuration, and gear amounts for all federal lobster permit holders; and
- Eliminate loop holes for emerging fixed gear fisheries that are exempt from management and reporting.

In closing we are concerned that the Commonwealth of Massachusetts has been targeted by NMFS for whale conservation in part because we require our fishermen to comprehensively report their catch and effort information. While jurisdictions like Maine and the federal waters managed by NMFS, which lack any or only have minimal reporting requirements, are largely exempt from whale conservation measures. The lack of data from these jurisdictions is not sufficient reason to exempt them from regulation. Conversely a jurisdiction should not be singled out merely because it is the only one that supplied adequate data. The lack of data over a very broad portion of the Northeast prevents all of us from accurately characterizing the risk of entanglement to large whales. Meaningful and measurable large whale conservation cannot be achieved until the necessary steps are taken to address the overwhelming data gaps and latent effort in the U.S. lobster fishery and other fixed gear fisheries.

Sincerely,

Paul J Diodati

Paul J. Diodati
Director

cc: McKiernan, Burke, Glenn (MA DMF)
MA Marine Fisheries Advisory Commission

The Humane Society of the United States • Center for Biological Diversity • Whale and Dolphin Conservation • Caroline Good • International Fund for Animal Welfare • Defenders of Wildlife

Via Regulations.gov

September 13, 2013

Mary Colligan
Assistant Regional Administrator for Protected Resources
NMFS Northeast Region
55 Great Republic Dr.
Gloucester, MA 01930

Re: Atlantic Large Whale Take Reduction Plan Proposed Rule

Dear Ms. Colligan,

The conservation representatives of the Atlantic Large Whale Take Reduction Team, including The Humane Society of the United States, Center for Biological Diversity, Whale and Dolphin Conservation, Caroline Good, the International Fund for Animal Welfare, and Defenders of Wildlife, submit the following comments on the National Marine Fisheries Service's (NMFS) proposed rule to amend the Atlantic Large Whale Take Reduction Plan (ALWTRP), 78 Fed. Reg. 42,654 (July 16, 2013), and the Draft Environmental Impact Statement (DEIS) on the proposed amendments.[1]

We strongly support adopting additional conservation measures to decrease the risk of entanglement of endangered North Atlantic right whales, humpback whales, and fin whales, as well as minke whales, and to ensure the continued survival and eventual recovery of these imperiled species. The known serious injury and mortality rate for right whales and humpback whales from fishing gear entanglement was *double* the potential biological removal (PBR) between 2006 and 2010,[2] and scientists have long recognized that both groundline and vertical line present entanglement risk.[3] Although the agency's 2007 ALWTRP rule required gear modifications and other measures to reduce groundline risk, entanglements have continued.[4] Further risk reduction is imperative to conserve the species and meet the requirements of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA).

As described in detail below, in order to reduce entanglement risk, we generally support time/area closures in key areas where whales concentrate and increasing the minimum number of

[1] NMFS, Draft Environmental Impact Statement for Amending the Atlantic Large Whale Take Reduction Plan: Vertical Line Rule (July 2013) (DEIS).
[2] Waring G.T., E. Josephson, K. Maze-Foley, P.E. Rosel, editors. 2013. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2012. NOAA Tech Memo NMFS NE 223; 419 p. Available at http://www.nefsc.noaa.gov/nefsc/publications/
[3] DEIS at 2-41.
[4] *Id*.

traps per trawl to reduce the number of risk-prone vertical lines in the water. *Among the alternatives* presented by the agency, *Alternative 5 (the agency's proposed rule) is preferable* because it includes appropriate seasonal time and area closures in Jordan Basin, Jeffreys Ledge, and Massachusetts Restricted Area #1; requires minimum traps per trawl; and presents the highest reduction in co-occurrence score among the alternatives.

However, *Alternative 5 and NMFS's DEIS are insufficient in several regards*. As described below:

- NMFS inappropriately proposes to exempt Maine and New Hampshire state waters from complying with any risk reduction measures, except gear marking. These exemptions are entirely unwarranted.
- NMFS does not propose any risk reduction measures in the mid-Atlantic, even though the area presents a risk for both right and humpback whales.
- In the Southeast, NMFS largely retains the status quo, despite known and growing vertical line risk, and the agency fails to justify varying requirements for weak links and breaking strengths of line in different areas.
- The proposed rule fails to sufficiently reduce risk for humpback whales.
- The proposed rule fails to sufficiently address risk from gillnets.
- Proposed new gear marking requirements do not sufficiently differentiate between areas.
- The co-occurrence model used to identify risk-prone areas fails to include relevant data on whale presence and inappropriately aggregates fishing effort data, resulting in potentially erroneous risk scores.
- The DEIS fails to consider an adequate range of alternatives and insufficiently evaluates cumulative impacts.

We urge the agency to act as expeditiously as possible to revise the proposed rule and DEIS and implement the most conservative measures to ensure the species' continued survival and recovery and to further ensure NMFS meets its substantive and procedural duties under the MMPA and ESA. *See* 16 U.S.C. §§ 1387(f)(7)(C), (F) (requiring NMFS to implement amendments to the TRP "[n]ot later than *60 days* after the close of the comment period") (emphasis added).

A. NMFS Must Adopt Additional Measures to Reduce Entanglement

1. Despite Existing ALWTRP Measures, Endangered Large Whales Are Threatened by Continuing Entanglement.

With a minimum population of fewer than 450 individuals, "the western North Atlantic right whale (*Eubalaena glacialis*) is one of the rarest of all large cetaceans and among the most endangered species in the world."[5] Although the right whale has been listed as endangered since 1970, the species has not recovered.[6] NMFS has repeatedly stated that the species' survival and

[5] DEIS at 102.

[6] *See e.g.*, NMFS, *Recovery Plan for the North Atlantic Right Whale (Eubalaena glacialis)* (Aug. 2004) at III-1 ("North Atlantic right whales face a high risk of extinction into the foreseeable future").

recovery is dependent on protecting every individual animal, and "the population can sustain no deaths or serious injuries due to human causes if its recovery is to be assured."[7] NMFS has identified entanglement in commercial fishing gear and ship strikes as the two primary factors impeding the North Atlantic right whale's recovery.[8] Humpback and fin whales are also listed as endangered, and entanglement poses serious risks to the species' survival and recovery.[9]

NMFS adopted the ALWTRP in 1997 to reduce impacts of commercial fishing on North Atlantic right, humpback, and fin whales. *See* 16 U.S.C. § 1387(c)(3)(A)(iv); 50 C.F.R. § 229.32.[10] Since that time, and despite several ALWTRP amendments, documented serious injury and mortality for both right whales and humpback whales has continued to exceed potential biological removal (PBR) levels.

In 2001, NMFS issued several biological opinions concluding that the original ALWTRP would not avoid the likelihood of jeopardy for right whales. The agency amended the ALWTRP in 2002 to adopt Seasonal Area Management and Dynamic Area Management restrictions.[11] However, that year, eight more right whales were found entangled, and NMFS concluded that these management measures were "not effective at avoiding the likelihood of jeopard[y]" and that the ALWTRP again required revision.[12]

During the next stage of revisions, NMFS and the ALWTRT recognized that both groundline and vertical line cause entanglement and needed to be addressed.[13] In 2007, NMFS amended the ALWTRP to require all trap/pot fisheries along the Atlantic coast to use sinking groundline, except in certain exempted areas.[14] However, although the agency clearly recognized that risk from vertical lines remained a problem, the agency stated vertical line "will be address[ed] . . . with the ALWTRT" in the future.[15]

Since that time, large whale entanglements have continued. The known serious injury and mortality rate for right whales from fishing gear entanglement was *double* PBR between

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[7] 73 Fed. Reg. at 60,176; *see also* 69 Fed. Reg. 30,857, 30,858 (June 1, 2004) (concluding that the "loss of even a single individual may contribute to the extinction of the species," and that "if current trends continue, the population could go extinct in less than 200 years").
[8] *Recovery Plan* at v.
[9] Waring et al. 2013.
[10] 62 Fed. Reg. 39,157 (July 22, 1997).
[11] 67 Fed. Reg. 1142 (Jan. 9, 2002).
[12] 70 Fed. Reg. 35,894 (June 21, 2005) (describing ALWTRP history).
[13] *See* NMFS, Final Environmental Impact Statement for Amending the Atlantic Large Whale Take Reduction Plan: Broad-Based Gear Modifications (Aug. 2007) at 2-41, 2-42 (noting estimates that 56% of whales for which entangling gear could be identified were entangled in vertical/buoy line, and 28%were entangled in groundline); Johnson, A.J., G.S. Salvador, J.F. Kenney, J. Robbins, S.D. Kraus, S.C. Landry, and P.J. Clapham. 2005. Fishing gear involved in entanglements of right and humpback whales, *Marine Mammal Science* 21(4): 635-645 (noting that any part of the gear (buoy line, groundline, floatline, and surface system line) creates a risk for entanglement); NMFS, Endangered Species Act Section 7 Consultation on the Continued Implementation of Management Measures for the American Lobster Fishery (Aug. 2012), at 94 (2012 Lobster BiOp).
[14] 72 Fed. Reg. at 57,104.
[15] *Id.*

2006 and 2010 (serious injury and mortality from fisheries is 1.8, while PBR is 0.9).[16] NMFS's 2012 Biological Opinion analyzing the effects of the American lobster fishery concludes that federal fisheries may kill or seriously injure up to three right whales each year.[17] The biological opinion also notes preliminary data indicating that, in 2010 alone, there were five new observed right whale entanglements and two entanglement-related right whale deaths, and that, in 2011, there were eleven new right whale entanglements and at least one right whale death from entanglement.[18]

However, as NMFS acknowledges, documented serious injury and mortality rates may vastly under-represent actual mortality, as many entanglements and mortalities are unobserved;[19] scarring data may better reflect actual entanglement rates.[20] A 2005 analysis of scarification data revealed that over 75% of right whales were scarred at least once by fishing gear, and between 14 and 51% of all right whales are involved in entanglements *each year*.[21] A more recent study estimated even higher rates of entanglement – finding that, based on scarification, between 1980 and 2009, 82.9% of known right whales suffered entanglements and 59% of right whales have been entangled more than once.[22]

Entanglement also poses a substantial threat to other endangered Atlantic large whales. Serious injury and mortality for humpback whales for the same period was also double PBR (serious injury and mortality from fisheries is 5.8, while PBR is 2.7).[23] However, as with the right whale, actual entanglement rates of humpbacks are likely much higher than observed rates. Again based on scarification data, it is estimated that between 48 and 65% of the Gulf of Maine humpback population has experienced entanglements.[24] This same methodology indicates that the annual entanglement-related mortality rate of Gulf of Maine humpback whales may be as high as 18.8 to 29.3 whales per year, depending on the assumptions underlying estimates of population size.[25] NMFS's Draft Batch Biological Opinion on the continued operation of gillnet fisheries estimates that federal fisheries kill or seriously injure eight humpbacks per year.[26] In addition, NMFS estimates that two endangered fin whales are killed or seriously injured each year due to entanglement in commercial fishing gear.[27]

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[16] Waring et al. 2013; DEIS at 2-32.
[17] 2012 Lobster BiOp at 126.
[18] *Id.* at 114-16.
[19] Waring et al. 2013; DEIS at 1-3.
[20] DEIS at 2-32.
[21] *Id.*; Waring et al. 2013; 2012 Lobster BiOp at 118.
[22] Knowlton, A.R., P.K. Hamilton, M.K. Marx, H.M. Pettis, and S.D. Kraus. 2012. Monitoring North Atlantic right whale *Eubalaena glacialis* entanglement rates: a 30 yr retrospective. Marine Ecology Progress Series 466: 293-302.
[23] *Id.*
[24] Waring et al. 2013.
[25] Robbins, J. 2009. Scar based inference into Gulf of Maine humpback whale entanglement: 2003-2006. Report to the National Marine Fisheries Service. Order Number EA133F04SE0998.
[26] NMFS. Draft Endangered Species Act Section 7 Consultation on the Continued Implementation of Management Measures for the Northeast Multispecies, Monkfish, Spiny Dogfish, Atlantic Bluefish, Northeast Skate Complex, Mackerel/Squid/Butterfish, and Summer Flounder/Scup/Black Sea Bass Fisheries (May 2013), at 258 (Draft Batch BiOp).
[27] DEIS at 2-36.

2. The MMPA and ESA Mandate Further Reduction of Entanglement Risk

NMFS clearly has both the authority and the legal mandate to take additional action to protect endangered whales from fishing gear entanglement. Both the ESA and MMPA mandate that NMFS protect and recover the North Atlantic right whale, the humpback whale, the fin whale, and other imperiled marine life. The agency must take further action to ensure that it complies with its statutory mandates.

Enacted in 1972, the MMPA seeks to maintain stable, functioning marine ecosystems, to secure and restore healthy marine mammal populations, and to protect individual animals from harm. 16 U.S.C. §§ 1361(2); 1362(18)(A); *Animal Welfare Inst. v. Kreps*, 561 F.2d 1002, 1007 (D.C. Cir. 1977) ("the MMPA is an unusual statute . . . motivated by considerations of humaneness towards animals, who are uniquely incapable of defending their own interests"). Accordingly, the goal of the MMPA is to maintain an "optimum sustainable population" of each marine mammal stock, defined as "the number of animals which will result in the maximum productivity of the population or the species," considering both carrying capacity of the habitat and ecosystem health. *Id.* §§ 1361(6), 1362(9).

To reach these goals, Section 118 of the MMPA requires NMFS to develop a "take reduction plan" for each "strategic stock" of marine mammals that interacts with any fishery that causes either "frequent" or "occasional" mortality or serious injury to marine mammals. 16 U.S.C. § 1387(f)(1). Strategic stocks include those stocks that are listed as a threatened or endangered species under the ESA and for which the level of human-caused mortality exceeds the PBR level. *Id.* § 1362(19). PBR is defined as the "maximum number of animals . . . that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population." *Id.* § 1362(20).

The MMPA sets specific deadlines both for when take reduction plans must be created and also when the plans must accomplish their goals. The "immediate goal" of a take reduction plan is to reduce, "within 6 months of its implementation," the incidental mortality and serious injury of marine mammals to below the PBR level. 16 U.S.C. § 1387(f)(2). The long-term goal of a take reduction plan must be to, within 5 years, reduce incidental mortality and serious injury "to insignificant levels approaching a zero mortality and serious injury rate." *Id.* The agency has defined "insignificant levels approaching . . . zero" or "ZMRG" to mean 10% of a stock's PBR. 50 C.F.R. § 229.2. In enacting the MMPA, Congress expressed its clear intent that Section 118 would require "*immediate* action to protect . . . marine mammal stocks most affected by interactions with commercial fishing operations." S. REP. NO. 103-220, at 6 (1994) (emphasis added).

Yet, as explained above, entanglements of Atlantic large whales continue. The observed level of serious injury and mortality for right whales and humpback whales from entanglement nearly *doubles* PBR for both species,[28] and estimated entanglement rates based on scarification indicate serious injury and mortality may be even higher. Because serious injury and mortality of right whales and humpback whales exceeds PBR and vastly exceeds insignificant levels

[28] *See* DEIS at 1-2 (stating that NMFS set the PBR for right whales at 0.9 and the PBR for humpback whales at 2.7).

approaching zero, the current ALWTRP is not meeting the MMPA's mandate and must be amended. 16 U.S.C. § 1387(f)(2). Further, because serious injury and mortality occur at a rate above PBR, the recovery rate for the stock will be retarded, by definition, and will preclude the species from reaching its optimum sustainable population. *Id.* §§ 1361(6); 1362(9).

Enacted in 1973, the ESA seeks to protect endangered and threatened species and conserve the habitats upon which they depend. 16 U.S.C. § 1531(b). Considered "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation," the ESA embodies the "plain intent" of Congress to "halt and reverse the trend toward species extinction, whatever the cost." *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180, 184 (1978).

To implement this mandate, Section 7(a) of the ESA requires that all federal agencies "utilize their authorities in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered species and threatened species." *Id.* § 1536(a)(1); *see also id.* § 1531(c)(1) (it is the "policy of Congress that all Federal . . . agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes" of the ESA). The ESA defines "conserve" as "the use of all methods and procedures which are necessary to bring any endangered species . . . to the point at which the measures provided pursuant to this chapter are no longer necessary." *Id.* § 1532(3).

In addition, Section 4(f) specifically requires that NMFS "develop *and implement*" recovery plans for each threatened or endangered species. 16 U.S.C. § 1533(f) (emphasis added). Recovery plans must "incorporate . . . a description of such site-specific management actions as may be necessary to achieve the plan's goal for the conservation and survival of the species." *Id.* § 1533(f)(1)(B)(i). The Recovery Plan for the North Atlantic right whale explicitly requires NMFS "to reduce or eliminate" mortality from entanglement in fishing gear and concludes that "rigorous and urgent action is needed" to reduce these threats.[29] Thus, in order for NMFS to meet its mandates under Sections 2, 4, and 7 of the ESA, the agency must take action to reduce the continuing threat of whale injury and death from entanglement in commercial fishing gear.

Continued entanglements are not only impeding the MMPA's mandate to reach ZMRG and the ESA's recovery mandate for the North Atlantic right whale and other endangered whales, but are unlawful. The ESA prohibits the "take" of an endangered species. *Id.* §§ 1538(a)(1), (g) (also prohibiting any entity, including an agency, from "caus[ing] take"). The ESA defines take to prohibit conduct that will "harass, harm, . . . wound, kill, [or] trap" an individual of a listed species. *Id.* § 1532(19). Similarly, the MMPA establishes a "moratorium on the taking" of marine mammals and specifically prohibits "any person . . . or any vessel [from] tak[ing] any marine mammal." *Id.* §§ 1371(a); 1372(a). The statute broadly defines take to mean "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." *Id.* § 1362(13).

Although both the ESA and the MMPA contain provisions to authorize take incidental to an otherwise lawful activity, including commercial fishing, *see* 16 U.S.C. §§ 1536(b)(4); 1371(a)(5)(E); 1387(a), NMFS has not invoked these limited exceptions to permit the incidental

[29] Recovery Plan at II.

take of any endangered whales by the fisheries that must comply with the ALWTRP.[30] Nevertheless, NMFS continues to authorize the operation of these fisheries, and endangered whales continue to become entangled in fishing gear and die. NMFS must therefore implement additional mitigation measures to protect these imperiled species and ensure that the agency does not violate the ESA or MMPA by causing their unlawful take. Amending the current ALWTRP with additional protections discussed below is a necessary step towards achieving those important goals.

B. The Amended ALWTRP Must Reduce Serious Injury and Mortality to Below PBR, Approaching Insignificant Levels

As noted above, under the MMPA, the "immediate goal" of a take reduction plan must be to reduce, "within 6 months of its implementation," the incidental mortality and serious injury of stocks to below PBR and within 5 years, to ZMRG or 10% of PBR. 16 U.S.C. § 1387(f)(2); 50 C.F.R. § 229.2. To meet these goals, the MMPA requires that a take reduction plan "shall include measures the Secretary expects will reduce, within 6 months of its implementation, . . . mortality and serious injury to a level below the [PBR] level." 16 U.S.C. § 1387(f)(2).

Accordingly, to comply with these MMPA requirements, NMFS's proposed ALWTRP rule must include vertical line reduction and other risk reduction measures that the agency "expects will reduce, within 6 months of the plan's implementation," right whale and humpback serious injury and mortality to below PBR. 16 U.S.C. § 1387(f)(5)(A). The DEIS indicates that the various action alternatives proposed will reduce the number of vertical lines in the Northeast and reduce the co-occurrence score. However, the agency fails to definitely link the proposed measures to a reduction in serious injury and mortality. While we fully appreciate the difficulty of this task, the MMPA clearly requires the agency and the ALWTRP to meet this minimum legal standard, and it is currently impossible for the public or the agency itself to determine whether the plan is sufficient.

As we noted above and in our comments submitted in April 2012, based on the most recent final Stock Assessment Report (SAR), right whale serious injury and mortality is double PBR (serious injury and mortality from fisheries is 1.8, while PBR is 0.9),[31] and serious injury and mortality for humpbacks is more than double PBR (serious injury and mortality from fisheries is 5.8, while PBR is 2.7).[32] As not all carcasses are detected or retrieved for necropsy, these numbers represent the minimum level of mortality and serious injury suffered by these species. However, these numbers suggest that, at a minimum, a 50% reduction in entanglement risk may be necessary to sufficiently reduce serious injury and mortality for both species to below PBR. While a 50% reduction in risk does not necessarily equate to 50% reduction in vertical lines or co-occurrence score, a 50% reduction in co-occurrence score provides at least some basis for meeting PBR.

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[30] *See, e.g.*, Lobster BiOp; Batch BiOp; DEIS at 2-9–2-10 (listing fisheries that must comply with ALWTRP).
[31] Waring et al. 2013; DEIS at 2-32.
[32] *Id.*

Yet the projected range of both co-occurrence score and vertical line reduction resulting from the current proposal is quite limited. For example, under the various alternatives, NMFS predicts that, coast-wide, vertical lines will be reduced by only 29.2 to 36.5% and co-occurrence scores reduced by between 35.8 and 41.7%, even assuming a 100% suspension of fishing in closure areas and no displacement.[33] None of the alternatives results in a 50% vertical line or co-occurrence score reduction as suggested above, let alone addresses the serious injuries and mortalities that go unaccounted for, as noted in the SARs. In order to comply with the requirements of the MMPA, NMFS's proposed rule should meet this standard, or provide a rational and detailed explanation for how the agency's rule will reduce right whale and humpback serious injury and mortality to below PBR within six months of the rule's implementation. 16 U.S.C. § 1387(f)(5)(A); 5 U.S.C. § 706.

C. Seasonal Closures and Trawling Up Are Essential to Entanglement Risk Reduction

The conservation members of the TRT support NMFS's proposal in Alternative 5 to require a minimum number of traps per trawl because the proposal incorporates suggestions from the states, NMFS, scientists, and conservation groups involved, and is expected to achieve the greatest reduction in co-occurrence. However, without a clearly defined target for vertical line reduction or indicator that can directly measure reduction in risk, we have serious doubts that the increased trawling requirements and restriction to one endline for trawls of five traps or less will by themselves achieve the impact required to reduce take below PBR. For this reason, we believe that closures in Jordan Basin, Jeffreys Ledge, and Massachusetts Restricted Area #1 are essential to reducing entanglement and serious injury/mortality of right whales and humpbacks, as required by the ESA and MMPA. The number of Full Time Equivalent lobster vessels expected to be affected by the included closures is minimal (five in Jordan Basin, 69 in Jeffreys Ledge and 110 in Massachusetts Restricted Area 1),[34] while the reduction in co-occurrence score is more than a 10% improvement over Alternative 3, which lacks these closures. Therefore, we strongly urge NMFS to continue its support for key targeted closures and include those described in Alternative 5 in the final rule.

The closures in Alternative 5 (submitted to NMFS by our group and Scott Kraus and supported in our comments in February and April 2012) are necessary to ensure new measures will reduce take below PBR. As described above, with reported serious injury and mortality still double PBR for both right and humpback whales (1.8 versus 0.9, and 5.8 versus 2.7, respectively),[35] at minimum, a 50% reduction in risk is likely necessary to sufficiently reduce take to below PBR. Reduction in co-occurrence score is not a direct measure of reduction in risk. Nonetheless it is unclear whether the coast-wide co-occurrence score reduction of 41.7% projected under Alternative 5 (assuming a 100% suspension) will achieve this 50% reduction in risk.[36] However, with all other alternatives projecting more limited reductions in co-occurrence, the best means proposed at this point to reduce risk is through targeted closures, according to the prescribed times and locations mapped out for Alternative 5.

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[33] DEIS at 5-10.
[34] DEIS at 1-11.
[35] *Id.*
[36] DEIS at 5-10.

Each of the closure areas proposed under Alternative 5 has a high co-occurrence score in the months proposed for closure. These areas also represent key habitat for feeding and breeding of large whales, right and humpback in particular, and so should be afforded additional protection. North Atlantic right whales feed primarily on copepods, and only in areas that have high enough concentrations of plankton to sustain the proper caloric intake for survival.[37] Locations that provide the necessary concentrations are not common, and the locations that do should be protected because the whales cannot simply move to another place to feed. Below we have provided additional evidence of the presence of right whales in these areas during the months recommended for closure, to complement our February 2012 proposal for these seasonal closures.

1. Jordan Basin

Jordan Basin is an important area for North Atlantic right whales and humpbacks, particularly during the winter months when right whales congregate in the area for feeding and breeding.[38] During this same time, presence of whales overlaps with heavy fishing effort resulting in a high degree of co-occurrence.

Surveys of Jordan Basin have produced high numbers of right whale sightings. Surveys by NMFS's Northeast Fisheries Science Center (NEFSC) in the winter of 2008 reported 44 individual right whales observed on December 3 in the Jordan Basin area and about a week later on December 14, 41 right whales were sighted a little west of Jordan Basin.[39] Between 2002 and 2008, NMFS aerial surveys identified half the North Atlantic population in the central Gulf of Maine between November and January.[40]

The mixture of shallow topography, enriched waters and coastal nutrient input generates exceptionally high productivity in the Gulf of Maine, including Jordan Basin. As a result, these areas produce vast amounts of the prey upon which North Atlantic right whales feed.[41] The whales are sighted all year long in this area, but they forage in especially high numbers during the fall and early winter months when copepods are found at their highest concentrations in these deep-water basins.[42]

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[37] Pace, R.M. III and R. Merrick. 2008. Northwest Atlantic Ocean Habitats Important to the Conservation of North Atlantic Right Whales (Eubalaena glacialis). NEFSC Ref. Doc. 08-07. Available at: http://www.nefsc.noaa.gov/publications/crd/crd0807/index.html

[38] Cole, T., P. Hamilton, A. Henry, P. Duley, R. Pace, B. White and T. Fraser. 2013. Evidence of a North Atlantic right whale Eubalaena glacialis mating ground. Endangered Species Research. July 3, 2013. V.21. P 55-64. Available at: http://www.int-res.com/abstracts/esr/v21/n1/p55-64/

[39] Dawicki, S. 2009. High numbers of right whales seen in Gulf of Maine. *NOAA National Marine Fisheries Service*. Available at: http://www.eurekalert.org/pub_releases/2009-01/nnmf-hno010209.php

[40] Cole, T., P. Hamilton, A. Henry, P. Duley, R. Pace, B. White and T. Fraser. 2013. Evidence of a North Atlantic right whale Eubalaena glacialis mating ground. Endangered Species Research. July 3, 2013. V.21. P 55-64. Available at: http://www.int-res.com/abstracts/esr/v21/n1/p55-64/

[41] Good, C.P. 2008. Spatial ecology of the north atlantic right whale (eubalaena glacialis). *ProQuest Information and Learning Company*. Available at: http://search.proquest.com/docview/20429157?accountid=10207

[42] Pace and Merrick 2008.

For example, right whale surveys conducted in Jordan Basin during the winter of 2004-2005 reported up to 24 foraging whales at a time.[43] Unfortunately, fishermen also take advantage of the biological productivity of these areas, which entails vessels and fishing gear in significant numbers. Since the presence of right whales coincides with abundance of copepods, and Jordan Basin is a hotspot for copepod accumulation, it should not be surprising that whales are present in this area to feed and should be protected while doing so.

Multiple Dynamic Management Areas (DMAs) associated with aggregations of three or more right whales have also been put in place in Jordan Basin during the fall and winter months. In 2009, DMAs were established in October and December;[44] in 2010 for the months of January, February, and October through December;[45] in 2011 during January, November, and December,[46] and more recently in January of 2012.[47] Higher survey effort in 2009 and 2010 resulted in peak sightings of 81 and 153 right whales respectively in Jordan Basin. These repeated sightings of right whales during aerial surveys, which triggered establishment of DMAs and associated voluntary speed restrictions, only further reinforce that right whales are frequenting this area during winter months and should therefore be further protected from heavy fishing effort during this time. These data also demonstrate the value and need for continued funding for research and survey efforts, as higher survey effort in 2009 and 2010 corresponded to a greater number of sightings and subsequently an increased number of established DMAs.

Based on the large body of evidence supporting high presence of right whales co-occurring with fishing effort, we support the NMFS proposal to close Jordan Basin from November 1 through January 31 as part of NMFS's final rule.

2. Jeffreys Ledge

Fishing closures should also be extended to cover concentrations of right whales and other baleen whales present in and around Jeffreys Ledge. The northwest edge of Jeffreys Ledge has been identified as being a hot spot for North Atlantic right whales, according to Sightings Per

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[43] *Id.*

[44] Khan, C., T. Cole, P. Duley, A. Glass, J. Gatzke. 2010. North Atlantic Right Whale Sighting Survey (NARWSS) and Right Whale Sighting Advisory System (RWSAS) 2009 Results Summary. *US Dept Commer, Northeast Fish Sci Cent Ref Doc*. Available at: http://www.nefsc.noaa.gov/publications/crd/crd1007/crd1007.pdf

[45] Khan, C., T. Cole, P. Duley, A. Henry, J. Gatzke, J. 2011. North Atlantic Right Whale Sighting Survey (NARWSS) and Right Whale Sighting Advisory System (RWSAS) 2010 Results Summary. *US Dept Commer, Northeast Fish Sci Cent Ref Doc*. Available at: http://www.nefsc.noaa.gov/publications/crd/crd1105/1105.pdf

[46] Khan C., T. Cole, P. Duley, A. Henry, J. Gatzke, Corkeron. 2012. North Atlantic Right Whale Sighting Survey (NARWSS) and Right Whale Sighting Advisory System (RWSAS) 2011 Results Summary. *US Dept Commer, Northeast Fish Sci Cent Ref Doc*. Available at: http://www.nefsc.noaa.gov/publications/crd/crd1209/

[47] J. Gatzke, C. Khan, A. Henry, T. Cole, P. Duley. 2013. North Atlantic Right Whale Sighting Survey (NARWSS) and Right Whale Sighting Advisory System (RWSAS) 2012 Results Summary. *US Dept Commer, Northeast Fish Sci Cent Ref Doc*. Available at: http://www.nefsc.noaa.gov/publications/crd/crd1308/

Unit Effort (SPUE) data from between 2003-2009.[48] The North Atlantic Right Whale Consortium 2012 Annual Report Card reported 90 right whale sightings at Jeffreys Ledge between November 2011 and October 2012.[49] These surveys show that right whales are undoubtedly present in this area during the fall and winter months. Furthermore, there have been various sightings and documentation, ranging from 4 to 50 individual right whales in Jeffreys Ledge during the fall and winter months (September-December) with subsequent sightings in Cape Cod Bay from January to May (Table 1).[50]

Table 1. Number of individuals seen in each habitat by year. # Adjacent column reflects the number of individuals seen in Jeffreys Ledge during a sighting season (September – December) and subsequently in Cape Cod Bay the following season (January – May). % Adjacent column reflects the percentage of whales seen in Jeffreys Ledge during a sighting season that are subsequently seen in Cape Cod Bay the following season.[51]

Season	JL Individuals	CCB Individuals	# Adjacent	% Adjacent
2003/2004	14	60	2	14.3
2004/2005	21	45	5	23.8
2005/2006	4	63	1	25.0
2006/2007	29	126	12	41.3
2007/2008	50	192	23	46.0
2008/2009	32	193	12	40.6
2009/2010	16	124	0	0.0

Surface skimming and near-surface feeding behavior has also been observed in this area from October to December. Additionally, during 20 years of observations from the 1970s to 1990s, 52 of 374 photo-identified North Atlantic right whales (13.9% of the population) were seen at least once on Jeffreys Ledge. [52]

A 2011 progress report noted approximately 20 right whales seen on Jeffreys Ledge in mid-October, after which a DMA was created for the subsequent 15 day period, ending on November 7.[53] In 2009, five DMAs were put into place in between January-February and

[48] Longley, K.E. 2012. Investigating the role of an understudied North Atlantic right whale habitat: Right whale movement, ecology, and distribution in Jeffreys Ledge. Master's Thesis.
[49] North Atlantic Right Whale Consortium 2012 Annual Report Card. Available at: http://www.narwc.org/pdf/2012_Report_Card.pdf
[50] Longley, K.E. 2012. Investigating the role of an understudied North Atlantic right whale habitat: Right whale movement, ecology, and distribution in Jeffreys Ledge. Table 2.3. Master's Thesis. Pg 46.
[51] *Id.*
[52] Weinrich, M. T., Kenney, R.D., & Hamilton, P.K. 2000. Right whales (*Eubalaena glacialis*) on Jeffreys Ledge: A habitat of unrecognized importance? *Marine Mammal Science, 16*(2), 326. Available at: http://www.gso.uri.edu/~rkenney/reprints/Weinrich%20et%20al%202000%20Jeffreys%20Ledge%20RIWHs.pdf
[53] The Whale Center of New England. 2011. Research and Habitat Protection of North Atlantic Right Whales on Jeffreys Ledge IFAW Progress Report.

October-November.[54] At least seven DMAs were declared in Jeffreys Ledge in 2010,[55] and at least eight DMAs were declared between August 2011 and June 2012.[56] This repeated activation of DMAs in Jeffreys Ledge is further proof to the presence of right whales during these months. Data collected since 2002 indicate this area is an area of continual, annual, high use.[57]

High fishing effort combines with this concentration of whales to produce a very dangerous situation during much of the fall and winter, as is shown in the NMFS calculations of co-occurrence scores. Because Jeffreys Ledge is a feeding area with a high presence of right whales in the fall and winter, it warrants closure to trap/pot and gillnet fishing to protect these essential and vulnerable individuals from being injured or killed, and we support the inclusion of a Jeffreys Ledge closure from October 1 to January 31 as part of NMFS's final rule.

3. Cape Cod Bay and Outer Cape

Existing trap/pot gear modification requirements and restrictions for the Cape Cod Bay restricted area are insufficient to effectively reduce risk within this area, therefore we recommend extension of current closures to cover trap and pot fisheries from January 1 through April 30 across the larger Massachusetts restricted area described in Alternative 5.

While the North Atlantic right whale remains one of the most critically endangered species in the world, sightings are becoming increasingly frequent in this region both within and adjacent to currently designated critical habitat in Cape Cod Bay. As demonstrated in Table 1 above, sightings of 45 to 193 whales were recorded January to May during survey efforts from 2003-2010.[58] The Provincetown Center for Coastal Studies reported that during an aerial survey on April 26 of this year, 113 right whales were sighted – the most in one day since 2011.[59] In other words, more than 20% of the entire population was confirmed to be in this one area on one day. In January of 2013, a right whale was observed in the unprotected western side of Cape Cod Bay, accompanied by a newborn;[60] there is also abundant evidence over the past decade of feeding and nursing of calves in and around Cape Cod Bay and the outer Cape, highlighting this as a key habitat for recovery of this population.

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[54] Bettridge, S. and Silber, G.K. 2010. Vessel Operations in Right Whale Protection Areas in 2009. *National Marine Fisheries Service*. Available at: http://www.nmfs.noaa.gov/pr/pdfs/shipstrike/opr44.pdf

[55] Khan et al. 2011.

[56] Center for Biological Diversity, Defenders of Wildlife, Humane Society of the United States, and Whale and Dolphin Conservation Society. "Petition for Rulemaking to Prevent Deaths and Injuries of Critically Endangered North Atlantic Right Whales from Ship Strikes." Submitted to the Secretary of Commerce and NOAA Fisheries on June 28, 2012.

[57] Asaro, M.J. 2012. "Geospatial analysis of management areas implemented for protection of the North Atlantic right whale along the northern Atlantic coast of the United States." Marine Policy (36) 915–921. Available at: http://www.sciencedirect.com/science/article/pii/S0308597X1200005X

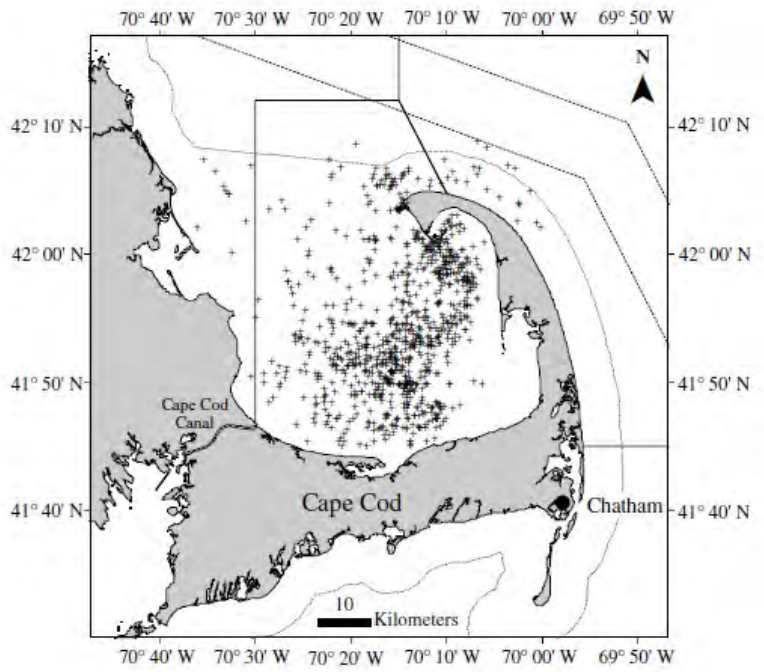
[58] Longley, K.E. 2012. Investigating the role of an understudied North Atlantic right whale habitat: Right whale movement, ecology, and distribution in Jeffreys Ledge. Table 2.3. Master's Thesis. Pg 46.

[59] Rossiter, W. 2013. Watching Wandering Whales. In: Whales Alive, Vol. XXIII No. 2. http://csiwhalesalive.org/newsletters/pdf/CSI2013_07%20Whales%20Alive.pdf

[60] Newborn Right Whale in Cape Cod Bay Fights for Survival. Cape Cod Today. January 15, 2013. http://www.capecodtoday.com/article/2013/01/15/16507-newborn-right-whale-cape-cod-bay-fights-survival

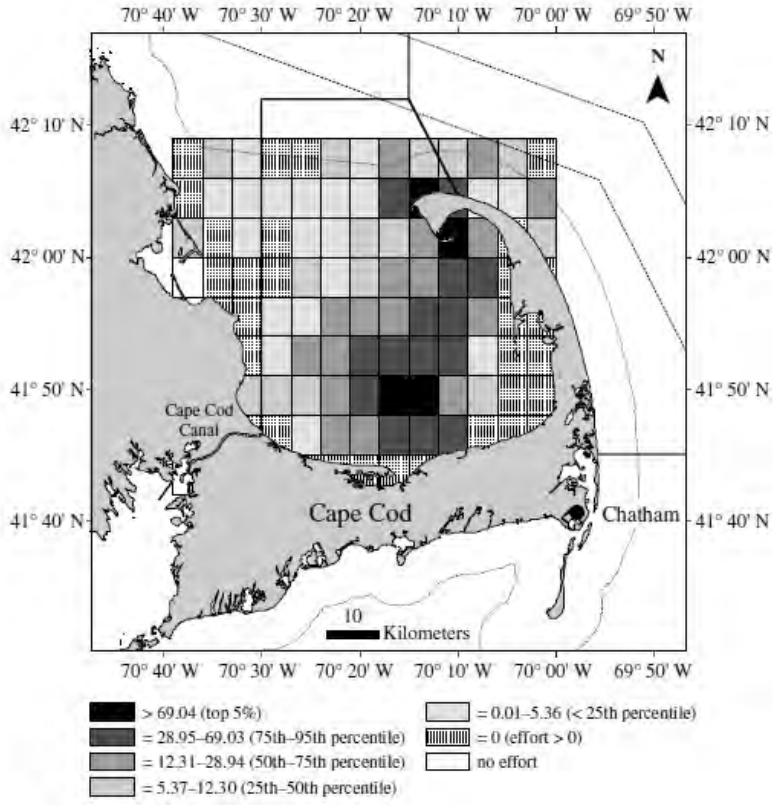
However, the Massachusetts restricted area closure should not be limited to just the area currently designated as critical habitat (Figure 1). In addition to the need to protect the western side of Cape Cod Bay, a 2008 study found that, a 2008 study found that there is no statistically significant difference in SPUE data for right whales between the areas inside the current Cape Cod Bay critical habitat and the areas to the east (P= 0.669) (Figure 2); therefore, sightings data indicate equally high presence of whales extending beyond the bay and along the outer Cape.[61]

Figure 1. North Atlantic right whale sightings recorded during aerial survey effort 1998-2002. Sightings extend outside the currently designated Critical Habitat. A sighting is defined as one or more whales observed at the same time and location.[62]



[61] Nichols, O.C., R.D. Kenney, M.W. Brown. 2008. Spatial and temporal distribution of North Atlantic right whales (Eubalaena glacialis) in Cape Cod Bay, and implications for management. *Fishery Bulletin*, 106(3), 270-280.
[62] *Id.*

Figure 2. Overall mean North Atlantic right whale sightings per unit effort, 1998-2002.[63]



The DEIS provides additional evidence supporting the need to include all of these high use waters. The adjusted co-occurrence scores in Appendix 5B-2 of the DEIS are elevated for this entire area as well, showing similar scores for inside Cape Cod Bay and along the backside of the Cape for at least the period of January through April.

As currently designated, protected areas and time are neither contiguous nor continuous, leaving gaps in protection. For example, the current Cape Cod Bay closure is instituted prior to protections in the Great South Channel or the back side of Cape Cod as though the whales don't have to traverse these waters to enter Cape Cod Bay when coming from the south, when clearly they do have to make this transit. NMFS must include the largest area of protection for this area as defined in Alternative 5, rather than continue to expose whales to elevated entanglement risk that results from gaps in the timing of non-continuous risk reduction measures.

4. Trawling Requirements

NMFS proposes to increase the minimum number of traps per trawl as a way to reduce the number of risk-prone vertical lines in the water column. Presumably, fewer lines will reduce encounter risk and thus the risk of death or serious injury. Clearly, however, this involves interplay of factors such as line strength, relative density of lines, whale behavior, and chance. We support the trawling requirements proposed in Alternative 5, even though other alternatives would require longer trawls and, presumably, result in fewer vertical lines in the water column.

[63] *Id.*

The DEIS acknowledges that, although preferred Alternative 5 does not result in the highest percent reduction of vertical line, it has the potential to result in the greatest reduction in co-occurrence scores. The lower scores in the preferred alternative are a consequence of presumed reductions in vertical line consequent to increased trawl length requirements that are combined with its having the largest areas with proposed seasonal closures. Prohibiting risk-prone gear in an area is the surest means of reducing entanglement risk. As posited in the DEIS, the greatest benefit would come from implementing seasonal closures that are more inclusive in size, in combination with increasing the number of traps per trawl in other areas or times.

Lastly, in its *Federal Register* notice, NMFS requests comments on whether the final regulations should be adjusted so that the number of traps per trawl is limited by specific vessel sizes.[64] NMFS has also requested comment on whether the net benefits of the rule would be affected by exempting vessels under a particular size class."[65]

Both of these proposals were raised by industry and/or state representatives to the take reduction team. They were not consensus recommendations by the team. The intent was to provide a smaller minimum trawl size for small vessels (for example allowing single pots or doubles instead of longer trawls). It is our understanding from discussions in the TRT that small vessels tend to operate closer to shore and the trawling requirements in nearshore waters are already proposed to be shorter lengths.[66] We do not support further reducing trawl lengths by way of exemptions for small vessels. The purpose of the proposed rule is to reduce the number of vertical lines in the water column. If NMFS allows singles and even shorter trawls, this changes the calculus of how many lines remain and thus it would affect NMFS's projections of risk reduction in a manner that has not been analyzed in the DEIS. We feel strongly that the net benefit of the rule would be reduced by altering minimum trawl lengths based strictly on vessel size and that vessels should not be exempted from risk reduction measures simply on the basis of their size class.

As described in the sections above, we strongly support the agency's proposal to reduce vertical line by requiring minimum traps per trawl and closures in the Northeast, as these measures are necessary to conserve both right whales and humpback whales and to meet the mandates of the ESA and MMPA. However, the agency's proposal is not sufficiently protective in several regards. The remainder of this comment describes those failings; we request that NMFS amend its current proposal and DEIS to further protect these endangered species.

D. Proposed Exemption Areas in Maine and New Hampshire State Waters Are Unwarranted

In its rule, NMFS proposes to retain the current exemption of approximately 70% of Maine's state waters from any gear modification requirements, an exemption to which we, as the TRT's conservation members, have long objected. Additionally, the preferred alternative would also exempt the state waters of New Hampshire from complying both with *new* gear measures

[64] 78 Fed. Reg. at 42,658.
[65] *Id.*
[66] *Id.* at 42,667.

proposed in this rule *and* existing risk reduction measures required by the current TRP.[67] In proposing these exemptions – including waters that have been subject to risk reduction measures since 1998 – NMFS appears willing to accede to unacceptable levels of risk to both endangered large whales and sea turtles.

1. Exemptions Pose Elevated Risk to Sea Turtles

NMFS has failed to present sufficient information in the DEIS to analyze and explain the effects of its continuing exemption of Maine or its proposed exemption of New Hampshire state waters, with respect to impacts on endangered sea turtles, particularly leatherback sea turtles. As the DEIS acknowledges, NMFS has received reports of leatherback entanglements in lobster trap/pot buoy lines, gillnet buoy lines, and whelk trap/pot gear in waters from Maine to Virginia; indeed, leatherbacks may be attracted to buoys because of their resemblance to jellyfish, and/or because of other prey organisms that colonize buoys and ropes.[68]

The DEIS acknowledges that potential for adverse impacts to protected species from the expansion of exempted areas is likely to be the greatest for leatherbacks, particularly if they swim into shallow waters to pursue nearshore jellyfish.[69] Despite acknowledging that a large number of fishing vessels operate in exempted waters, particularly in New Hampshire, NMFS downplays the significance of these impacts by stating that only one leatherback entanglement was reported in New Hampshire waters between 2002 and 2011. Therefore, NMFS concludes "the likelihood of adverse impacts on leatherbacks is minimal."[70] But NMFS has not provided sufficient evidence in the DEIS to support this conclusion, an error that must be rectified in the Final EIS.

To begin with, because leatherback entanglements may be grossly underreported or never observed in the first place, NMFS cannot justify assuming that leatherback entanglements in exempted waters will not increase significantly, based solely on a single entanglement report in New Hampshire waters in a decade. This is especially true given the lack of observer coverage and a reliance on self-reporting in the lobster fishery. Nor may NMFS avoid its obligation to analyze the impacts of the ongoing exemption in Maine state waters on leatherback entanglements as part of its discussion of past and present impacts.

Furthermore, NMFS makes no attempt to quantify the occurrence of leatherbacks in existing or proposed exempted waters, through survey data, entanglement, or stranding reports, or any other data source. This quantification is critical not only to calculate impacts of current exempted Maine state waters on leatherback entanglements, but also to calculate the increase in potential entanglement rates assuming the number of fishing vessels exempted from protective gear requirements in New Hampshire state waters increases significantly, as predicted. In the absence of any quantitative analysis of leatherback presence during fishing seasons, NMFS has shirked its obligations to present an adequate analysis of the cumulative effects of exemptions in

[67] 78 Fed. Reg. at 42,656.
[68] DEIS at 5-31, 9-63.
[69] DEIS at 5-35, 8-3
[70] DEIS at 5-35.

state waters, and certainly cannot justify its conclusions that its proposed exemptions will have minimal impacts.

Finally, NMFS fails to mention, let alone discuss, scientific research about the effects of climate change and other environmental perturbations on surface water temperatures or on jellyfish populations and how these adverse effects would impact leatherbacks.[71] In New England waters, warmer surface waters and/or increased jellyfish populations may attract increasing numbers of leatherbacks for longer periods, thus increasing the risk of entanglements in proposed exempted areas. In its Final EIS, NMFS must integrate information about the potential effects of sea temperature rise and prey population increases, or distributional shifts on the presence of leatherbacks in state waters affected by current and proposed exemptions.

In sum, the DEIS's conclusion that the expansion of currently exempted waters will have minimal impacts to endangered sea turtles, particularly leatherbacks, lacks sufficient evidentiary support, thus preventing the public from being informed of the actual or likely significance of the impacts of each alternative. Although the ALWTRP proposed rule is intended (and necessarily so) to increase greatly-needed protections for critically endangered right whales and other ESA- and MMPA-protected whale species, NMFS cannot and must not avoid its statutory obligation to provide a thorough discussion based on high-quality information of the Alternatives' significant impacts to ESA-protected sea turtles, particularly endangered leatherbacks. NMFS must rectify this deficiency in the Final EIS.

2. Exemptions Pose Elevated Risk to Whales

In addition to unacceptably increasing entanglement risk for ESA-listed sea turtles, the proposed exemptions also sustain and increase risk for whales. Data cited in the co-occurrence model, information on the location of past entanglement of right whales, and the nature of risk in the water column all demonstrate these exemptions are risk-prone and violate the agency's duty under the MMPA to include measures that will reduce serious injury and mortality of right whales and humpback whales to below PBR, let alone ZMRG.

First, the waters proposed for exemption in both Maine and New Hampshire have similar co-occurrence scores to areas that the agency proposes to regulate, suggesting all areas share the

[71] *See, e.g.*, Purcell, J. 2012. Jellyfish and ctenophore blooms coincide with human proliferations and environmental perturbations. Annual Review of Marine Science. Vol. 4: 209-235. Available at http://lgmacweb.env.uea.ac.uk/green_ocean/publications/annurev-marine-120709-142751.pdf. McMahon, C.R. and Hays, G.C. 2006.Global Change Biology. Vol. 12, Issue 7, 1330-1338. Thermal niche, large-scale movements and implications of climate change for a critically endangered marine vertebrate. Available at: http://www.researchgate.net/publication/227709584_Thermal_niche_largescale_movements_and_implications_of_climate_change_for_a_critically_endangered_marine_vertebrate/file/9fcfd50bfe0c486312.pdf Witt, M.J. *et al.* 2007. Prey landscapes help identify potential foraging habitats for leatherback turtles in the NE Atlantic. Marine Ecology Progress Series. 337: 231-243. Available at http://www.vliz.be/imisdocs/publications/231296.pdf Houghton, J.D.R. *et al.* 2006. Jellyfish aggregations and leatherback turtle foraging patterns in a temperate coastal environment. Ecology 87: 1967-1972. Available at: http://grizzlie.utm.utoronto.ca/~w3bio205/jellyfish_turtles.pdf

same level risk and should all be regulated.[72] For example, Appendix 5B-2 of the DEIS clearly shows that the adjusted co-occurrence scores for vertical lines (as depicted by color blocks) in much of Maine's exempted waters are identical to (and, in several summer and fall months, *higher than*) other areas where risk-reduction measures (e.g., trawling, weak links, etc.) are required. The agency provides no explanation for why Maine's waters should continue to be exempt. Further, in DEIS Appendix 5B-2 where NMFS provides the "Baseline Co-Occurrence Comparison of Combined Right/Humpback Whales," the color gradients in map blocks show monthly co-occurrence scores when the adjusted sightings (not solely SPUE data) are used. These adjusted co-occurrence scores in state waters of New Hampshire (proposed for exemption) and state waters of northern Massachusetts (which are not exempted) are the same for all but one month of the year (February). In eleven months of the year, Maine and New Hampshire share with northern Massachusetts the same color gradient (i.e., co-occurrence score 1-100) and thus would seem at equal risk. In fact, the maps provided in Appendix 5B-2 show that the co-occurrence score is actually *higher* in the proposed exempted waters of New Hampshire than it is in Massachusetts in the month of November, yet NMFS proposes to exempt New Hampshire waters without explanation of the incongruity.

Second, the exemption of Maine state waters is unwarranted and fails to sufficiently reduce entanglement risk. During its last ALWTRP amendments in 2007, NMFS attempted to justify its exemption of Maine's waters from sinking ground line requirements, in part, because NMFS believed whales merely transit the coastal waters of Maine and do not spend substantial amounts of time diving or feeding.[73] The agency therefore apparently believed floating groundline in these waters would not put whales at as great of a risk.

While we question the agency's assumption that transient whales are at less risk from floating groundline, the agency's reasoning certainly does *not* hold true for risk from vertical lines. Because females with calves tend to spend more time at or near the surface,[74] whales that transit the exempted areas are likely at greater risk from vertical lines than from floating groundlines. Any whale transiting a dense field of vertical lines and surface buoy systems faces risk regardless of its dive profile, and NMFS must be especially precautionary when it comes to protecting females with dependent calves, as these animals are necessary to ensure the future growth of the species. In depicting areas that may pose the greatest risk, the agency's co-occurrence model does not appear to have taken into account the difficulty inherent in

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[72] The agency also exempted Maine waters from ALWTRP risk reduction measures in 2007 because its review of sightings data through fall of 2005 indicated limited right whale presence in the exempted areas, although the agency acknowledged that "[o]nly a small amount of the overall effort from surveys occurred within Maine state waters."

[73] NMFS. 2007. Final Environmental Impact Statement for Amending the Atlantic Large Whale Take Reduction Plan. Broad Based Gear Modifications. National Marine Fisheries Service, Northeast Regional Office. Volume 1, Chapter 3 Available at: http://www.nero.noaa.gov/whaletrp/eis/Volume%20I/CHAPTER%203.0%20Regulatory%20Alternatives.pdf. Based on satellite telemetry data from a study by Baumgartner and Mate NMFS concluded "that right whales typically do not spend substantial amounts of time in the coastal waters of Maine. Rather, they appear to move into Maine state waters briefly." *Id.* at 3A-3.

[74] Baumgartner, M. and B. Mate. 2003. Summertime foraging ecology of North Atlantic right whales. Marine Ecology Progress Series. 264:123-135. Available at: http://www.whoi.edu/cms/files/m264p123_59393.pdf

documenting transiting whales with limited survey efforts, nor the higher risk whales face from transiting a very dense field of vertical lines in nearshore and inshore waters.

Third, other sources of data indicate that right whales may be expected to use the waters inside the exemption lines for Maine and proposed for New Hampshire. For example, data from the fishery-related Dynamic Area Management (DAM) program and the vessel-related DMA program between 2002 and 2011 clearly illustrate risk extending well into waters proposed for exemption from this rule.[75] As can readily be seen in Asaro,[76] areas of DMAs and DAMs repeatedly extend into Maine and New Hampshire and other areas that NMFS claims are lower risk areas for right whales (Figures 3 and 4). The intent of setting DMA/DAM boundaries beyond the initial sighting itself was to "encompass the movements of right whales during the entire course of that event."[77] This means, in essence, that NMFS expects a whale may roam within the DAM/DMA area's confines for at least a two week period. By putting in place the many DMA/DAM zones off the coast of New Hampshire and Maine, NMFS acknowledges that there is a reasonable expectation that right whales would be within these waters (i.e., in the proposed exempted area). However, nowhere in the DEIS chapters on the Affected Environment or the Biological Impacts does NMFS even mention the imposition of DMA/DAMs and why consideration of the waters and boundaries that are protected in these risk-reduction actions is not relevant for consideration in this rulemaking.

[75] Asaro, M.J., 2012. "Geospatial analysis of management areas implemented for protection of the North Atlantic right whale along the northern Atlantic coast of the United States." Marine Policy (36) 915–921 http://www.sciencedirect.com/science/article/pii/S0308597X1200005X

[76] *Id.*

[77] Clapham, P.J. and R.M. Pace. 2001. Defining Triggers for Temporary Area Closures to Protect Right Whales from Entanglement: Issues and Options. NMFS. NEFSC Reference Document 01-06. 28 pp.

Figure 3. (From Asaro 2012). Locations of DAM and DMA zones for right whales, April 2002-June 2011.

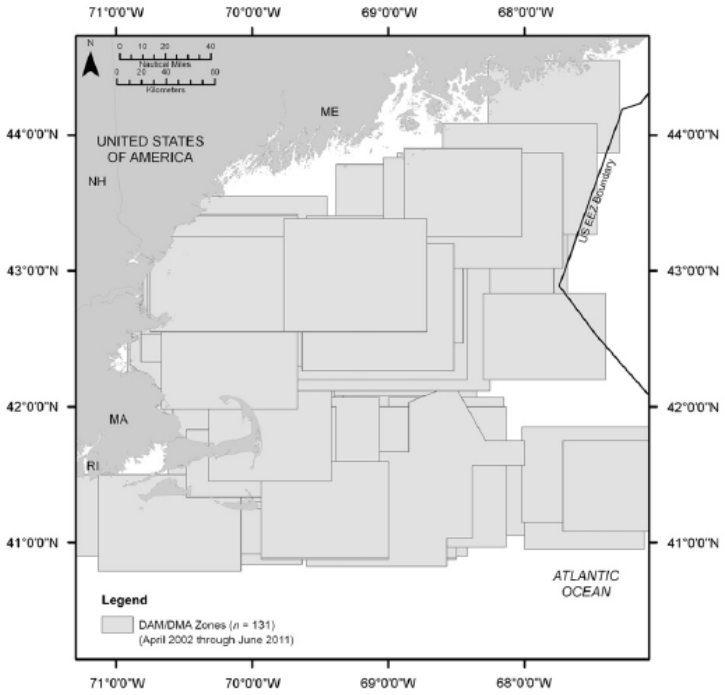
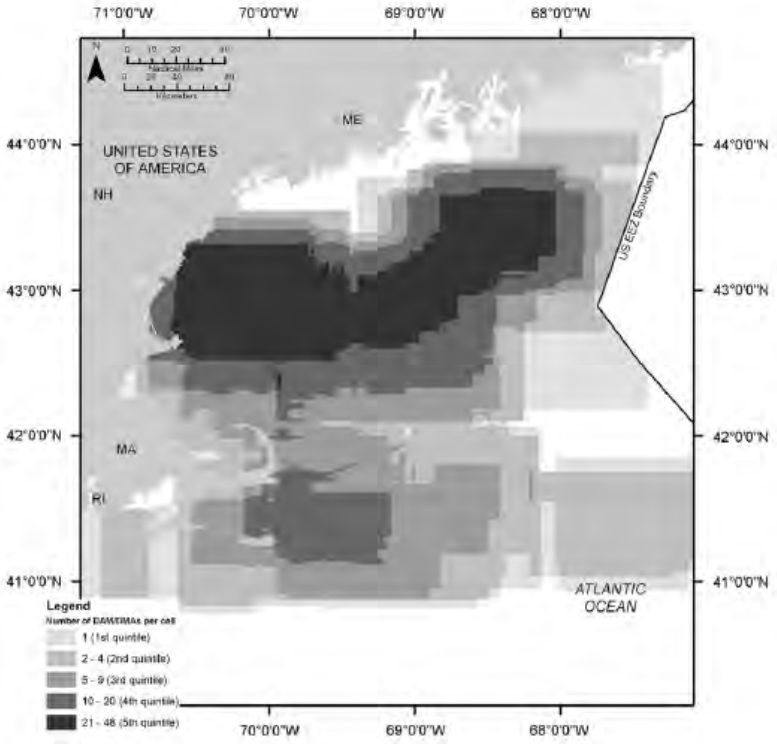


Figure 4. (From Asaro 2012) DAM and DMA densities per 1-minute square cell in waters off northeastern US.



In proposing the exempted areas, NMFS also does not discuss information regarding whales known to have been entangled in Maine or entangled in gear likely to have come from Maine. Between 2002 and 2005, for example, lobster gear from Maine accounted for 23% of all large whale entanglements, the single largest source of all entangling gear where the origin could be determined.[78] Between 1997 and 2005, 37% (3/8) of reported right whale entanglements involved Maine lobster gear.[79] Since 2009, very little information on gear collected from entangled whales has been provided to the TRT. However, a dead stranded right whale in February 2011 was entangled in floating groundline. Although the location of its original entanglement is not known, under the existing TRP, floating groundline was banned in the U.S except for an exempted area that comprises 70% of Maine's state waters. Given the longstanding problem of entanglement in lobster gear originating in Maine, it is not clear why NMFS believes that this area should be exempted from risk reduction measures.

Additionally, the proposed exemption for New Hampshire not only exempts the area from currently proposed risk reduction measures, but would also remove gear modification requirements that have been in place since the inception of the first TRP in 1997.[80] That rulemaking instituted seasonal requirements for the modification of both lobster and gillnet gear in Northern Inshore state waters, including most of New Hampshire state waters. Despite being mandated for over 15 years, weak links and sinking groundline will no longer be required in New Hampshire state waters. This is an unconscionable rollback of protections, particularly since NMFS has little to no information on the origin of entanglements and the available information, including information provided in the DEIS, indicates that the exempted waters of New Hampshire do not show significantly different in risk potential (i.e., adjusted co-occurrence scores) than the waters of northern Massachusetts where regulation will be required.[81]

We believe that the continued exemption of Maine state waters and this proposal to also exempt the state waters of New Hampshire are arbitrary, unjustified, and entirely unwarranted. The exemptions do nothing to decrease vertical line risk, and the New Hampshire exemptions actually *increase* risk to endangered whales and sea turtles in direct contravention of the agency's duties under the ESA and MMPA. We request that NMFS amend the proposed rule to require risk reduction measures in Maine and New Hampshire waters currently proposed for exemption.

E. Additional Risk-Reduction Measures Are Needed in the Mid-Atlantic

Other than required gear marking, for the mid-Atlantic, NMFS proposes only monitoring of interactions and outreach to the commercial fisheries, but no substantive risk reduction measures. 78 Fed. Reg. at 42,657. The lack of any proposed risk reduction for this area is unacceptable. As we discuss in detail below, the mid-Atlantic is a seasonal high use area for humpback whales and is subjected to only sparse systematic survey effort.[82] Additionally, the

[78] NMFS 2007. Preliminary Summary of NMFS Gear Analysis for Entangled Large Whales for the years 1997-2007 by species. Provided to the Atlantic Large Whale Take Reduction Team on April 28, 2008.
[79] *Id.*
[80] 62 Fed. Reg. 39,157 (July 22, 1997).
[81] DEIS at Appendix 5B-2.
[82] *See, e.g.*, DEIS at Appendix 5A.

agency relies solely on SPUE scores for estimating risk and fails to provide adjusted co-occurrence scores for this area, as it did for the Northeast in subsequent appendices. The recent increases in spiny dogfish and black sea bass quotas are likely to increase effort beyond what was considered in the model. This in turn will result in increased risk to whales transiting or seasonally residing in the waters of the mid-Atlantic.

F. Additional Risk-Reduction Measures Are Needed in the Southeast

The agency's proposal and DEIS fails to adequately address ongoing entanglement risk in the Southeast. The agency proposes the same measures for the Southeast in each of its alternatives, which would include three different trap/pot gear requirements within the same habitat. The NMFS proposal would establish a weak link breaking strength of 600 pounds in the state waters of Georgia and South Carolina, a 200-pound weak link breaking strength in Florida state waters, and a 600-pound breaking strength in the federal waters off all three states. Further, NMFS proposes to establish a vertical line breaking strength of 2,200 pounds in the state waters of Georgia and South Carolina, a 1,500 pound breaking strength for line in Florida state waters and, 2,200 pounds in Federal waters off all three states. This patchwork of requirements within the currently designated critical habitat, which includes state waters off Georgia and Florida as well as federal waters off Florida, is inconsistent and arbitrary.

First, as NMFS acknowledges, the proposed measures largely adopt the existing status quo, so the measures offer no reduction in entanglement risk. Further, although the DEIS attempts to rationalize this patchwork of different requirements by stating that the lower breaking strength in Florida would protect "neophyte" calves, these same "neophytes" are born further to the north,[83] where breaking strengths are far higher (and presumably create higher risk). In addition, NMFS cites Keller et al. (2012) in stating that the lower breaking strengths in Florida state waters are justified because mothers and calves are most often sighted in 10-20 meter depths, which is a depth common in Florida state waters but not Georgia/South Carolina.[84] NMFS does not explain why the Federal waters requirements mirror those of Georgia and South Carolina rather than the more appropriate, and more conservative, Florida breaking strengths. The same Keller et al. (2012) paper that NMFS cites as justifying different requirements for various state waters appears to show that the *same* ideal depth found in Florida state waters (i.e., 10-20 meters) is *also* found in federal waters extending out to the eastern most extent of the current critical habitat, 15 or more miles offshore of *both* Florida and Georgia.[85] The most risk-averse proposal (i.e., 200-pound weak link breaking strength and 1,500 pound vertical line breaking strength) should be adopted for the entire critical habitat if not for the entire Southeast restricted area.

Additionally, NMFS proposes no closures for the Southeast, even though co-occurrence scores in some areas of the Southeast are the same as areas proposed for closure in the Northeast. For example, NMFS proposes to close Cape Cod Bay to trap/pot fishing in January and February

[83] Waring et al., 2013
[84] Keller, C., L. Garrison, R. Baumstark, L. Ward-Geiger, and E. Hines. 2012 Application of a Habitat Model to Define Calving Habitat of the North Atlantic Right Whale In The Southeastern United States. Endangered Species Research 18. 73-87. July 30, 2012
[85] *Id.* at Figure 1.

based on co-occurrence scores shown in Appendix 5-A of the DEIS that are the same as those same months in portions of Southeast Critical Habitat, in which black sea bass and other trap/pot gear will continue be allowed. Since NMFS proposes to close critical habitat to trap/pot fishing in the Northeast, it makes no sense to allow trap/pot in the Southeast Critical Habitat where calves are younger and smaller and at greater risk.

We are particularly concerned about the failure to more fully address vertical line risk in the Southeast in light of the likely increase effort in the black sea bass fishery – an increase that was not considered in the DEIS.[86] Amendment 19 to the Snapper Grouper Fishery-Management Plan dramatically increased the black sea bass annual catch limits, but at the time of adoption, prohibited commercial black sea bass pots from November 1 to April 30, during high use times for North Atlantic right whale mothers and their newborns.[87] In adopting the seasonal closure, NMFS acknowledged the entanglement risk posed by trap/pot vertical lines and stated that the "prohibition would be a precautionary measure to prevent interactions between black sea bass pot gear and whales during large whale migrations and during the right whale calving season off the U.S. southeastern coast."[88] We strongly support this seasonal closure, as it is necessary to prevent entanglement risk to North Atlantic right whales in the calving grounds that extend from Florida into North Carolina.[89]

However, fishery management plans are notoriously subject to additional amendments that can remove measures necessary for conservation of endangered marine mammals and other protected species. In fact, just one month after approving a seasonal closure to commercial trap/pot gear, the announcement of the upcoming meeting of the South Atlantic Fishery Management Council states that the Council will address a proposed "Regulatory Amendment 16, pertaining to the *removal* of the [seasonal] prohibition of Black Sea Bass pots.[90] NMFS simply cannot allow the increased effort and increased risk that are likely due to the increased black sea bass quota under Amendment 19. We strongly recommend that NMFS adopt the black sea bass seasonal closure currently required under Amendment 19 as part of the current ALWTRP vertical line rule throughout the Southeast U.S. Restricted Area, an area that is already closed to gillnet fishing.

G. Additional Measures Are Necessary to Reduce Entanglement of Humpbacks

As the agency acknowledges in its proposed rule, the ALWTRP "is designed to protect three endangered species – the western North Atlantic stock of right whales, the Gulf of Maine stock of humpback whales, and the western North Atlantic stock of fin whales" from fishing gear entanglement.[91] We do not dismiss the urgent need to protect North Atlantic right whales, a species with a minimum population estimate of only 450 animals.[92] However, NMFS's

[86] This is also discussed in greater detail below in the section of our comments addressing deficiencies in assessing Cumulative Impacts.
[87] 78 Fed. Reg. 39,700 (July 2, 2013).
[88] *Id.* at 39,701
[89] Waring et al. 2013
[90] 78 Fed. Reg. 52,506 (Aug. 23, 2013) (emphasis added).
[91] Waring et al. 2013.
[92] *Id.*

proposed ALWTRP amendments focus on benefits to critically endangered North Atlantic right whales, largely overlooking the serious entanglement risk to Gulf of Maine humpbacks that remains.

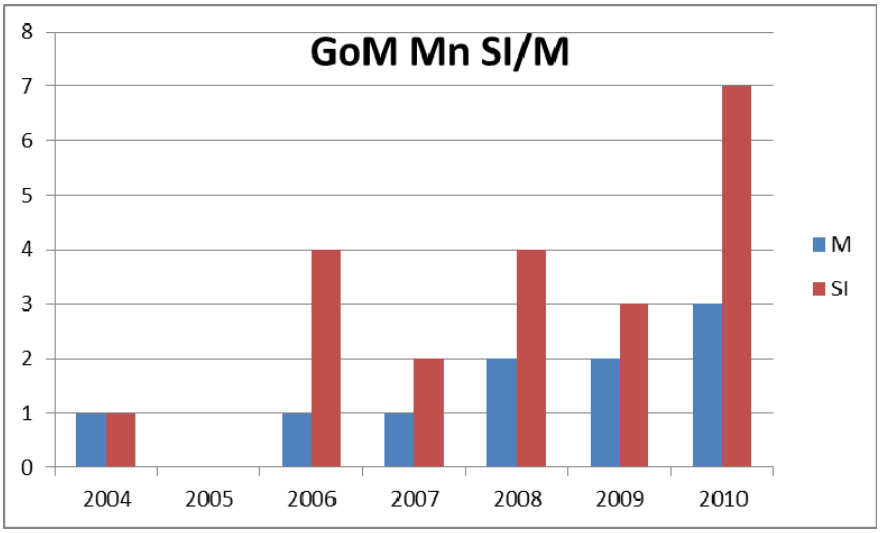
Both right whales and the Gulf of Maine humpback stock continue to suffer serious injury and mortality in excess of their PBR. As is the case with North Atlantic right whales, not all dead humpbacks are likely to be found. NMFS acknowledges in the stock assessment report that serious injury and mortality from U.S. fishing gear for Gulf of Maine humpbacks is a minimum estimate, but, even so, is still more than twice their allocated PBR. The NMFS data on cause of death were undetermined in over 82% (n=98/119) of humpback mortality cases.[93] When carcasses were examined, 43% were attributed to entanglement and 48% to vessel strikes.[94] If these ratios are consistent and are applied to the carcasses that were not examined, an additional 42 humpback whales may have died as a result of entanglement between 2006 and 2010. Further, NMFS indicated an additional 13 humpback entanglements during this time period would have resulted in serious injury if the whales had not been disentangled.[95] Therefore, as many as 64 humpbacks, nearly 13 cases per year, may be viewed as having been seriously injured or killed as a result of entanglements during this period. This is more than four times PBR (n=2.7) and more than twice what is currently reported from U.S. fisheries alone (n=5.2). Since as few as 7% of entanglement cases are witnessed,[96] it is highly likely that the number of serious injury and/or mortality cases is significantly higher than reported in the SAR (Table 2). Even without these additional data on carcasses that remain unexamined, NMFS's own data show a clear increase in serious injury and mortality for this stock is occurring (Fig. 5).

Table 2. Comparison of North Atlantic right and humpback whale Serious Injury and Mortality from the 2012 Stock Assessment Report[97]

2012 SAR	NA right whale	Humpback (Gulf of Maine)
Est. pop.	425	823
PBR	0.9	2.7
Avg fishing SI/M	1.8 (1.6 US)	5.8 (5.2 US)

[93] Henry, A.G., T.V. Cole. M. Garron, L. Hall, W. Ledwell, and A. Reid. 2012. Mortality and serious injury determinations for baleen whale stocks along the Gulf of Mexico, United States east coast and Atlantic Canadian provinces, 2006-2010. US Dept Commerce, Northeast Fish Sci Cent Ref Doc, 12-11.
[94] *Id.*
[95] *Id.*
[96] Robbins. J. 2012. Scar-based inference into Gulf of Maine humpback whale entanglement: 2010. Report to the National Marine Fisheries Service. Order number EA133F09CN0253.
[97] Waring et al. 2013.

Figure 5. Serious Injury and Mortality of humpback whales between 2004 to 2010[98]



The Gulf of Maine humpback stock is reportedly increasing but, at the same time, NMFS acknowledges that studies on its population growth are conflicting.[99] A 1997 study estimated the population growth rate of the Gulf of Maine humpback whale stock at 6.5%,[100] yet an updated analysis indicated that the growth rate was between 0-4%.[101] NMFS appears to dismiss these data because they did not match with the confidence interval of the previous study and defaults to a growth rate of 6.5%, "despite the uncertainty accompanying the more recent estimates of observed population growth rate for the Gulf of Maine stock."[102] Furthermore, calving rates may not reflect the actual growth rate for the population as juveniles are significantly more likely to become entangled and have a lower survival rate from entanglement than adults.[103] The loss of these animals from the potential future recruitment to the population is difficult to quantify but cannot be ignored.

Because the take from the Gulf of Maine humpback stock is over the PBR, and because trend data are equivocal, we believe humpbacks require similar protection from sources of anthropogenic injuries and mortalities as North Atlantic right whales. Despite ongoing humpback mortality, the major mitigation measures put forward in the proposed rule only incidentally protect humpback whales in the Gulf of Maine and do nothing to protect humpback whales in the mid-Atlantic, an area of increasing use for this species.

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[98] Waring et al. 2011; Waring et al. 2012; Waring et al. 2013.
[99] *Id.*
[100] Barlow, J. and P.J. Clapham. 1997. A new birth-interval approach to estimating demographic parameters of humpback whales. Ecology 78:535-546.
[101] Clapham, P.J., J. Barlow, T.Cole, D. Mattila, R. Pace, D. Palka, J. Robbins, and R. Seton. 2003. Stock definition, abundance and demographic parameters of humpback whales from the Gulf of Maine. J. Cetacean Res. Manage 5:13-22.
[102] Waring et al. 2013.
[103] Robbins 2012.

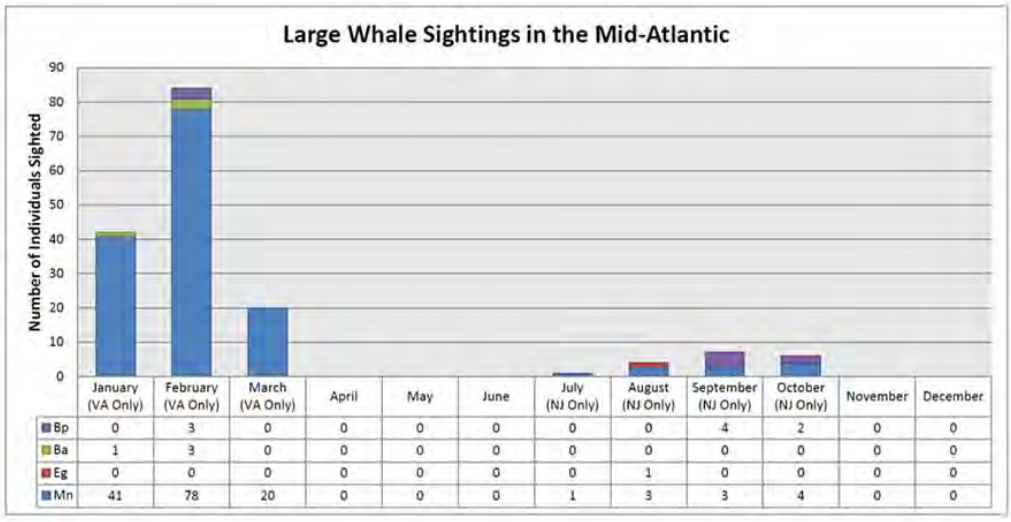
Under NMFS's Preferred Alternative 5, seasonal closures are in areas where humpbacks are known to occur but not during times when they are most abundant and would benefit from the measures. For example, the proposed closures of Jordan Basin (November 1-January 31), Jeffreys Ledge (October 1-January 31) and Cape Cod Bay (January 1- April 30) occur primarily during the winter months when most humpbacks have migrated south to their breeding areas.

Furthermore, we are particularly concerned for humpbacks in the mid-Atlantic where they occur with greater frequently than the NMFS broad scale data currently show.[104] NMFS proposes no measures to reduce risk in the mid-Atlantic and instead only proposes public outreach, monitoring, and a gear marking scheme. While NMFS acknowledges that the waters of the mid-Atlantic are used as a wintering area for humpback whales,[105] the broad scale surveys conducted by NMFS inadequately reflect the increasing use of this habitat by this species. No humpback whales and no near shore sightings of any large whale were recorded during NOAA's 2010 or 2011 AMAPPS surveys of the mid-Atlantic (NOAA 2010, NOAA 2011). Yet sightings of humpback and fin whales were documented by opportunistic platforms in the mid-Atlantic in 2010.[106] Large whale sightings in the mid-Atlantic have been documented during summer, fall, and winter months, and include numerous individuals identified to the Gulf of Maine (Figure 6, Table 3).[107]

Although the DEIS provided adjusted co-occurrence scores for the Northeast in Appendix 5B that incorporated data other than SPUE data, it made no attempt to do so for the mid-Atlantic. This should be corrected to better account for areas with minimal to no systematic survey effort. While management measures designed to protect North Atlantic right whales may provide some coincidental protection to other whales in the mid-Atlantic, NMFS must consider effective management measures for this area.

[104] Asmutis-Silvia, R., M. Pepe, and J. Bort. 2012. Whale Watching in the Mid-Atlantic: A Data Rich Resource. 2012. Report to NOAA's Fisheries Northeast Region Program Office (NERO), 55 Great Republic Drive, Gloucester, MA 01930. Award Number NA11NMF4720240. 113pp.
[105] Waring et al. 2013.
[106] Asmutis-Silvia et al. 2012.
[107] *Id.*; Barco, S.G., W.A. McLella, J.M. Allen, R.A. Asmutis-Silvia, R. Mallon-Day, E.M. Meagher, D.A. Pabst, J. Robbins, R.E. Seton, W.M. Swingle, M.T. Weinrich and P.J. Clapham. 2002. Population identify of humpback whales (Megaptera novaeangliae) in the waters of the U.S. mid-Atlantic states. J. Cetacean Res. Manage. 4(2):135-141.

Figure 6. Mid-Atlantic large whale sightings 2011 and 2012.[108]



	January (VA Only)	February (VA Only)	March (VA Only)	April	May	June	July (NJ Only)	August (NJ Only)	September (NJ Only)	October (NJ Only)	November	December
Bp	0	3	0	0	0	0	0	0	4	2	0	0
Ba	1	3	0	0	0	0	0	0	0	0	0	0
Eg	0	0	0	0	0	0	0	1	0	0	0	0
Mn	41	78	20	0	0	0	1	3	3	4	0	0

While the DEIS acknowledges that the original location of entanglements is often unknown, entangled animals have been reported in the mid-Atlantic and Southeast regions of the U.S. (Table 4). Furthermore, a review of entanglement cases reported to the Atlantic Large Whale Disentanglement Network demonstrate that a number of the cases reported in these areas involve gillnet gear (Table 5), a gear type not even considered in this proposed rule. The failure to consider this significant source of entanglement and death in humpbacks is discussed further below.

[108] Pepe, M., J. Bort, G. Lockhart, S. Barco, and R. Asmutis-Silvia. 2013. Can Platforms of Opportunity in the mid-Atlantic be Used to Supplement Broad Scale Survey Data? Poster session presented at: The 2013 Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS); 2013 March 22-24; Jacksonville, FL.

Table 3. Identified Gulf of Maine humpbacks sighted in the mid-Atlantic (2012) from Asmutis-Silvia et al. (2012).[109]

Name	Year 1st Seen	Year of Birth	Mother	Residency in VA	Residency in NJ	Sightings in Gulf of Maine 2012
Batcave's 2010 Calf	2010	2010	Batcave	7 days	1 day	
Woodpecker	2008	n/a	n/a	n/a*	n/a	April
NAHWC #7621**				1 day	n/a	
Embroidery	2010	n/a	n/a	1 day	n/a	
Knuckles' 2010 calf	2010	2010	Knuckles	n/a*	n/a	
Diablo's 2006 calf	2006	2006	Diablo	21 days	n/a	
Labyrinth	2008	2008	Baja	43 days	n/a	May
JT	2009	n/a	n/a	1 day	n/a	
Hippocampus	2009	n/a	n/a	42 days	n/a	
Fingerpaint	2004	n/a	n/a	1 day	1 day	
Leukos' 2010 calf	2010	2010	Leukos	34 days	n/a	
GoM Unknown #1017	2010	n/a	n/a	15 days	n/a	

Table 4. Entangled humpback and NA right whales documented in the mid-Atlantic and Southeast Regions since 4-5-09.[110]

	Eg	Mn
Mid-Atlantic (NJ-NC)	3	8
SE (SC-FL)	7	2

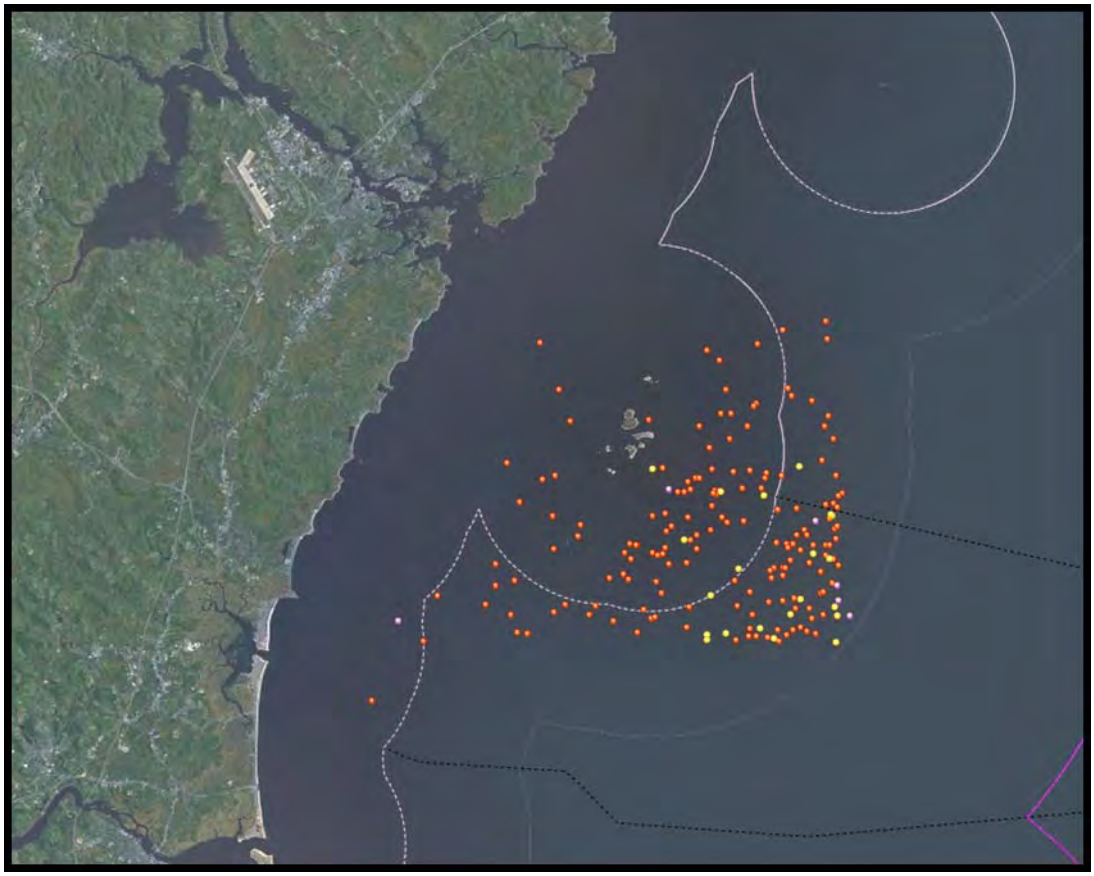
Table 5. Review of ALWDN database since 4-5-2009.[111]

	Eg	Mn	Locations
Definite gillnet	7	3	Eg: MA, GA, FL Mn: MA, VA, NC
Possible gillnet	1	3	Eg: FL Mn: MA, FL
Total entanglements	25	76	

[109] Asmutis-Silvia et al. 2012.
[110] Data from Atlantic Large Whale Disentanglement Network database, accessed September 2013.
[111] *Id.*

As discussed further below, NMFS should propose measures to reduce risk of entanglement in gillnets, a gear type historically found more often on entangled humpbacks, but increasingly impacting right whales as well.[112] Similarly, we are confounded that NMFS would arbitrarily remove all risk reduction measures intended to protect whales in the proposed exempted waters off New Hampshire, particularly given the well-documented presence of large whales in the area. Opportunistic data provided by the Blue Ocean Society demonstrates that large whales, including humpback whales and finback whales are not uncommon New Hampshire state waters (Figure 7).

Figure 7. Sightings of humpback whales (yellow), finback whales (orange) and NA right whales (purple) in NH coastal waters 2005-2013.[113]



In short, we believe that the lack of risk reduction afforded to humpback whales in the proposed rule violates NMFS's statutory obligation to implement both the MMPA and ESA protections for this stock.

[112] Johnson, A., G. Salvador, J. Kenney, J. Robbins, S. Kraus, S. Landry, P. Clapham. 2005. Fishing gear involved in entanglements of right and humpback whales. Mar Mamm Sci 21:635−645.
[113] Data courtesy of Blue Ocean Society, unpublished. Mapped in ArcMap.

H. Need to More Fully Address Risk from Gillnets

NMFS's proposed rule does little to address risk from gillnet gear. Gillnet gear continues to entangle and kill large whales, including both right whales and humpback whales, and is the gear type more often found on entangled humpbacks.[114] NMFS has not – but should – propose measures to reduce risk of entanglement in gillnets.[115] We appreciate the difficulty faced by the gillnet fishing industry in reducing the number of endlines with which they fish, but we also believe it is irresponsible for NMFS to ignore the risk posed by this fishery to North Atlantic right whales and humpback whales in the Gulf of Maine and mid-Atlantic regions. For example, the agency does not even consider applying the Northeast closures to gillnet fisheries, and instead only proposes to close trap/pot fisheries during the times with higher co-occurrence scores.[116] We request that the agency fully evaluate an alternative that considers the vertical line reduction benefits of closing the same Northeast areas to gillnet fishing and further adopt additional measures to reduce entanglement risk from gillnet gear.

I. Proposed Gear Marking Is Inadequate

We find the gear-marking scheme proposed under all alternatives insufficient and unlikely to meet the information needs of the scientists, fishermen, and NMFS alike. Without additional gear marking or a greater frequency of marking for longer length vertical lines, the proposed gear marking measures are likely to provide only limited information about location of entanglement, particularly in the Northeast. Therefore, in addition to the current proposal for gear marking under Alternatives 2 through 6, we recommend additional colors be added to differentiate between Lobster Management Areas and regions, and additional mid-line markings be required for vertical line greater than 130 feet in length.

As we have described, entanglement remains a major concern for Atlantic large whales. It is now estimated that more than 82.9% of right whales have been entangled at some point in their lives, [117] and a study of entanglement-related scarring on humpback whales in the Gulf of Maine estimated that between 48% and 65% had experienced entanglements.[118] Yet, for recorded large whale entanglements from 1997 to 2008, the type of fishery and location where the gear was set was only able to be determined for 15% of all cases.

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[114] Draft Gillnet BiOp at 258; *see also supra* Table 4.

[115] Johnson, A., G. Salvador, J. Kenney, J. Robbins, S. Kraus, S. Landry, P. Clapham. 2005. Fishing gear involved in entanglements of right and humpback whales. Mar Mamm Sci 21:635−645.

[116] *See* 78 Fed. Reg. at 42,655 ("NMFS decided to narrow the scope of the proposed rule to focus on the reduction of vertical lines from trap/pot gear instead of both trap/pot and gillnet gear").

[117] Knowlton et al. 2012.

[118] Robbins, J. and Mattila, D.K. 2001. Monitoring entanglements of humpback whales (*Megaptera novaeangliae*) in the Gulf of Maine on the basis of caudal peduncle scarring. Unpublished report to the Scientific Committee of the International Whaling Commission: SC/53/NAH25; NOAA Fisheries. (2012). North Atlantic Right Whale (*Eubalaena glacialis*): Western Atlantic Stock. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments - 2012*. Available at: http://www.nmfs.noaa.gov/pr/sars/pdf/ao2012.pdf

While we support the extension of gear mark length from 4" to 12", and inclusion of unique color markings for the Southeast Restricted Area North as currently proposed by NMFS, additional gear marking colors are needed to better differentiate location of entanglement. This is particularly true for the Northeast and Lobster Management Areas (LMA) 1 through 3, where data have shown the greatest amount of trap/pot fishing effort and highest levels of co-occurrence. Without further adjustment of color marking, the ability of the TRT and NMFS to make informed decisions about the effectiveness of rules and to adjust or modify regulations to better target high risk areas will be extremely limited. It is therefore in the best interests of the agency and fishermen to include additional color markings at the very least color coded by LMA in the Northeast, and by region for the mid-Atlantic and Southeast, so it can be tracked where entanglements are occurring. While the agency rejected consideration of alternatives that would require gear marking by state or fishery, finding this would be "too complex and require undue hardship,"[119] this same rational is not equally defensible for gear marking according to LMA or region. In our February 3, 2012 comments, we submitted a detailed, recommended color marking scheme and have included that proposal as Appendix A to these comments.

Although we are opposed to exemptions for Maine and New Hampshire state waters, if these exemptions are extended and included in the final vertical line rule, we strongly support the requirement for a unique identifier in these areas. The large number of vertical lines (more than 50% of all recorded vertical lines in the Northeast region exist in current Maine exempt waters) suggests that risk exists and additional monitoring through gear marking is warranted.

To maximize the probability that recovered line will contain a colored mark, frequency of gear marking should not be determined arbitrarily but should instead be based on length of line previously recovered. So while we support the addition of new markings at top and bottom, we believe a single midpoint marking will be insufficient, particularly for line of 130 feet or greater, and therefore recommend additional markings be required for lines of greater length.

As described in our previous comments dated February 3, 2012, we analyzed recovered gear line lengths from 28 entanglement events, reported in NMFS's annual Large Whale Entanglement and Ship Strike Reports between 2005 and 2009, and we were able to calculate the probability that recovered line will contain a mark (Table 6, see Appendix B for full analysis). For example, a 100 foot long vertical line marked at top, middle, and bottom (i.e. a 50 foot marking interval) would have an 80% chance of containing an identifying mark. For longer lines, these probabilities fall to 65% for 200 foot line, and less than 50% for 400 foot or longer vertical line.

[119] DEIS at 3-24.

Table 6. Probability that recovered line will contain a mark for different marking intervals

Marking interval (ft)	Probability that recovered line will contain a mark
20	0.92
30	0.88
40	0.84
50	0.80
60	0.77
70	0.73
80	0.71
90	0.68
100	0.65
150	0.56
200	0.49

We support more frequent gear marking, as it would increase the probability of recovering gear with markings. We believe 75% probability is a reasonable goal that balances the need for better data and the economic impact additional marking will incur upon fishermen. To achieve this target, marking at the top, middle, and bottom will be insufficient for any deployed vertical line greater than 130 feet in length (i.e. greater than a 65 foot marking interval); we encourage additional markings midway on these longer lines. Without data on average length of line deployed, we are unable to make exact recommendations for number of midway markings to achieve this target, but encourage the agency to use data available to it along with the above probability analysis to make this determination.

To achieve targeted spatial and temporal regulations with the biggest impact, the TRT, the agency, and fishermen need more information about what type of gear is entangling these whales and where they are being entangled. Improvements to frequency and color of gear marking are important not only for the U.S., but also for differentiation of entanglements occurring in U.S. versus Canadian waters. The U.S. has made great strides to develop new regulations to reduce impacts on large whales, but if we are unable to distinguish U.S. gear from Canadian gear, our ability to gauge the impact of our regulations will be limited. Therefore, we encourage NMFS to include additional gear marking for fisheries, particularly in the Northeast, with additional marks for line over 130 feet in length.

Lastly, because improved gear marking should lead to better data on when, where, and why entanglements occur, we also encourage the agency to produce more robust annual monitoring reports. We also ask that a full five year report be completed and made available to the public in advance of the final rulemaking in 2014, as the sinking groundline rule will have been in place for five years. A full report could assist managers, fishermen, and conservation groups to better understand the impact of the current regulations and, therefore, better inform decisions for the current proposed regulations.

J. Co-Occurrence Model Problems

In the proposed rule, NMFS states that the co-occurrence model "is an integral component of the vertical line strategy."[120] In assessing the risk reduction benefit of proposed management actions NMFS relies largely on the model for evaluation. For example, the agency proposes to exempt New Hampshire state waters from many of the Plan requirements based solely on co-occurrence scores.

Given the prominent role the model is assigned in the NMFS decision-making and evaluation process, it is critical to examine the robustness of the model design. We have serious concerns regarding the adequacy of the current version of the co-occurrence model and point to alternate approaches that would provide more accurate guidance. We appreciate that NMFS is working with imperfect data and that the agency acknowledges in the model documentation the data limitations, assumptions, and sources of uncertainty in the model. However, the agency makes no attempt to further discuss the consequences of these limitations or describe how they likely affect model output. Additional data and new approaches must be employed to strengthen the accuracy of the co-occurrence model and more information provided concerning the areas and time periods most impacted by insufficient data.

1. Concerns Regarding the Co-Occurrence Model and Other Data

a. Lack of Up-to-Date Data

The co-occurrence model is based on data that are already outdated. The data on federally permitted fisheries are only current through 2011; for state fisheries they are available only through 2010 or 2011, depending upon the state, and data on systematic sightings surveys for whales are only updated through May of 2010.[121] These data sets already lack new information on whale distribution, including a large right whale aggregation south of Cape Cod in 2011, and significant numbers of right whales – including a documented birth – utilizing waters on the western side of Cape Cod Bay in the spring of 2013 (an area that is not currently subject to restrictions for the rest of Cape Cod Bay and would be left unprotected under some proposed alternatives in this rulemaking).

b. Failure to Collect Sufficient Fishery Data

Given that entanglement involving trap/pot and gillnet fisheries has long been an important conservation issue, it is inexplicable that more effort has not been made to collect comprehensive spatial and temporal data regarding fishing activity. Most of the available fishery data are woefully inadequate for the quantification of a whale interaction risk model. The model developers have made skillful use of the available data, but have been forced to rely on unverified assumptions regarding the timing, location, and gear configuration of fishing operations.

[120] 78 Fed. Reg. 42,654 (July 16, 2013).
[121] *Id.*

NMFS must mandate timely and uniform reporting requirements for all states, including at a minimum: (1) quantifying the number of traps (or nets) fished, (2) the type and amount of line being used, (3) information on the type of gear used, (4) the configuration of pots or nets (e.g., how many per string or trawl), and (5) a uniform measure for effort and location of fishing. The lack of uniform data across states has been the subject of much debate in the take reduction team, with some states (e.g., Massachusetts) requiring a great deal more reporting and more data than others (e.g., Maine). For example, in the Southeast, we note that tables in Chapter 9 of the DEIS, which provide information on 2011 landings by state, lack landings data for Georgia.[122] Without uniformity in reporting, monitoring changes in the number of vertical lines and changes in fishing effort and spatial distribution will continue to confound managers.

Unlike the collection of whale data, which requires expensive shipboard, aerial, or acoustic monitoring, data on the location of fishing activity requires minimal time and equipment investment. In most locations along the eastern seaboard, cellular network access extends a few miles offshore, allowing fishermen to use basic smartphone technology to record fishing location data. Most offshore fishers already have vessels equipped with more sophisticated GPS equipment to mark gear location and keep records of past fishing success. Comprehensive gear data would dramatically improve model quality and allow for validation testing. In Canada, where similar trap and gillnet fisheries operate, fishers report on fishing activity in far more detail.[123] This has allowed the Canadians to develop detailed co-occurrence risk models for use in fisheries management.[124] The state of Massachusetts already collects far more comprehensive data than neighboring states, and its procedures, while still partially incomplete with regards to fishing location, could serve as a model for other states.

c. Averaging of Fishing Activity Across Vast Areas

We have significant concerns over the averaging of fishing effort across large areas. According to the co-occurrence model documentation, NMFS lacks data on fishing location for a significant proportion of lobster vessels fishing in the non-exemption portion of LMA 1. As included in the footnotes of the model documentation, for July 2011, this resulted in no location information for 42% of lobster vessels operating in LMA 1, 21% in LMA 2, 29% in LMA 3, and 9% in the Outer Cape LMA.[125] The documentation acknowledges that this is a "significant source of uncertainty" but fails to fully discuss the consequences of this data gap. LMA 1 encompasses the most heavily fished waters of all the lobster zones, as well as areas where right and humpback whales regularly form seasonal aggregations.[126] Assigning such a large

[122] DEIS at Exhibits 9-24 and 9-25

[123] Johnston, T.L., R.K. Smedbol, A. Serdynska, A. Vanderlaan, N. Helcl, L. Harris, C.T. Taggart. 2007. Patterns of fishing gear in areas of the Bay of Fundy and southwest Scotian Shelf frequented by North Atlantic right whales. Can. Tech. Rep. Fish. Aquat. Sci. 2745.

[124] Vanderlaan, A.S.M., R.K. Smedbol, C.T. Taggart. 2011. Fishing-gear threat to right whales (Eubalaena glacialis) in Canadian waters and the risk of lethal entanglement. Canadian Journal of Fisheries and Aquatic Sciences. 68(12): 2174-2193.

[125] Technical Documentation for the Vertical Line Model, Draft, June 2013. Industrial Economics, Inc. p. 25. Available at: http://www.nero.noaa.gov/protected/whaletrp/eis2013/june_2013_draft_vl_model_documentation.pdf

[126] Khan et al. 2011.

proportion of fishing activity across the entire LMA 1 region fails to adequately address the strong spatial aggregation of most lobster fishing effort in this area.

d. Failure to Utilize All Available Whale Data

NMFS fails to include opportunistic, acoustic, or telemetry data on whale distribution in its latest version of the co-occurrence model. The model documentation provides information regarding the addition of opportunistic sightings using a technique recommended by several members of the TRT.[127] However, this seems to have been conducted as a demonstration rather than a permanent addition to the model. The inclusion of the opportunistic data resulted in a dramatic change in SPUE scores, especially along the coast of Maine; however, the agency did not provide a complete description of results. The inclusion of opportunistic data along with telemetry and acoustic data would greatly enhance the quality and coverage of the whale input and provide critical information for months with sparse sightings effort. Another group of TRT members working on an alternate encounter-risk model raised many of these same concerns in a letter to NMFS dated April 26, 2012.[128]

2. Concerns Regarding Model Structure

a. Failure to Address Uncertainty

Model documentation fails to provide adequate information regarding output uncertainty. As with any model, the quality and accuracy of the co-occurrence model output varies across time and space, depending upon the quality and accuracy of data input. In the model documentation, NMFS discusses significant sources of uncertainty in the model data, but states that it is "not possible to generate statistical confidence intervals that characterize the uncertainty in the model's output."[129] At the very least, NMFS should provide a qualitative score that ranks the quality of the data that was input into each analysis cell. For example, analysis cells with whale sightings effort in the top 2 quartiles of all sightings effort could be ranked as high quality, the bottom 2 quartiles as moderate quality, and cells with no search effort or less than 13km of search effort could be ranked as low quality data. A similar mechanism could be used to determine the quality ranking for the vertical line assessment. In particular, the rating should capture the extent to which the location of fishing activity was spatially explicit or averaged over a large area. This sort of qualitative assessment would provide a basic indicator of confidence in the model output for each individual analysis unit.

b. Zero SPUE Analysis Cells

NMFS wisely identifies concerns with the use of zero SPUE values, especially for analysis units with little or no search effort. Since NMFS states that the co-occurrence models are being used as "a proxy for risk" the standard for determining whether an analysis unit has a value of zero whales (or zero SPUE) should not rely solely on whether a whale has been sighted

[127] http://www.nero.noaa.gov/whaletrp/trt/meetings/2012/Kenney%20SPUE%20proposal.pdf
[128] http://www.nero.noaa.gov/whaletrp/trt/meetings/2012/Kraus%20et%20al%20comments.pdf
[129] Technical Documentation for the Vertical Line Model, Draft, June 2013. Industrial Economics, Inc. http://www.nero.noaa.gov/protected/whaletrp/eis2013/june_2013_draft_vl_model_documentation.pdf

there, especially with sparse search effort, but whether it is possible that a whale could be present. When evaluating risk, a more appropriate question to ask is whether it is biologically and physically possible for a right whale or a humpback whale to be present in area X at time Y. If the answer is yes, that analysis unit cannot reasonably assume a zero value for whale presence. By using model output as a proxy for risk, NMFS inappropriately changes the meaning of zero SPUE from an empirical finding of "not present" to a conclusion of "never present."

Additionally, in several locations, there are analysis cells with high whale SPUE values separated by cells with a SPUE score of zero. This simply does not make functional sense. Whales cannot travel between high use areas without crossing through these purported zero SPUE cells. Although whales cannot be expected to travel in straight lines, there is an increasing understanding of their general course of movement around the western North Atlantic. Satellite tag data demonstrate that right whale movements exhibit both directed and meandering paths,[130] but ultimately they are frequently moving between well-identified high use areas in a somewhat predictable seasonal pattern.[131] Additionally, right whales are known to have crossed the Atlantic and otherwise have been identified far outside high use areas.[132]

c. Spatial Unit of Analysis

There appears to be a mismatch between the spatial unit of analysis used for the fishing gear (1 min^2 cells) and the whale data (10 min^2 cells). It is challenging to decipher how the model aggregates and then disaggregates data and when in the process this occurs. Further, the model documentation purports to be assessing fishing effort at the level of 1 min^2 cells yet substantial portions of the fishing effort are being averaged over the entire extent of the different LMAs.

d. Sensitivity Analysis of the Co-Occurrence Model

There appears to be some confusion regarding sensitivity analyses. A sensitivity analysis is any technique that examines how the values of independent data used to construct a model influence model output under a given set of assumptions. Put another way, it allows one to determine how much uncertainty in the output can be apportioned to different sources of input data. Two of the three independent reviewers called upon NMFS to conduct sensitivity analyses on several aspects of the co-occurrence model to evaluate the robustness of the model assumptions.

Appendix C of the Technical Documentation for the Vertical Line Model purports to discuss an "analysis of the sensitivity of the co-occurrence scores to the use of adjusted SPUE data." However, this documentation does not provide any true sensitivity analysis. Rather, it details the

[130] Mate, B.R., S.L. Nieukirk, S.D. Kraus. 1997. Satellite-monitored movements of the northern right whale. Journal of Wildlife Management 61(4): 1393-1405.
[131] Schick R.S., S.D. Kraus, R.M. Rolland, A.R. Knowlton, P.K. Hamilton. 2013. Using Hierarchical Bayes to Understand Movement, Health, and Survival in the Endangered North Atlantic Right Whale. PLoS ONE 8(6): e64166.
[132] Knowlton, A.R., J. Sigukjosson, J.N. Ciano, S D. Kraus. 1992. Long-distance movement of North Atlantic right whales (Eubalaena glacialis). *Marine Mammal Science* 8, no. 4: 397-405.

procedure by which NMFS adjusted SPUE scores, by employing opportunistic sightings data and re-running the model with the new data. No data are provided and only a minor quantitative examination is made of the change in model output as a result of the new data inputs in Attachment 5B-3. Based on the map outputs in Appendices C-2 and 5-B, it appears that the model is indeed sensitive to the presence of whales based on a visual inspection of the maps provided. The addition of new whale data clearly resulted in many analysis cells changing to from a zero co-occurrence score to a score greater than zero, particularly along the coast. Unfortunately, not enough data are provided to fully examine how sensitive the model is to this additional data. Attachment 5B-3 is intended to demonstrate the negligible impact of using the adjusted sightings however the tables provided includes only "net effect" values averaged across all analysis units. Presented this way, the data obfuscates any months and areas where the co-occurrence scores may have changed significantly.

Even a basic examination of the sensitivity of the model to all inputs would be helpful. For example, NMFS could conduct model runs systematically modifying all SPUE values and vertical line indicators by 5%, 10%, 15%, and 25% to quantitatively evaluate the impact on each analysis unit/time frames. NMFS acknowledges that there is a great deal of uncertainty in the accuracy of the vertical line indicators and whale SPUE. Rather than ignoring this uncertainty, the agency needs to evaluate it, even if the evaluation is qualitative in nature.

e. Specific Recommendation for Model Improvement

We recommend the following actions for improvement of the co-occurrence model:

1. Include all data on the spatial-temporal distribution of whales including aerial, shipboard, and opportunistic sightings, as well as acoustic and telemetry data. Opportunistic, acoustic, and telemetry data could be added using the techniques developed in Appendix C of the model documentation.
2. Immediately press state agencies for comprehensive data on fishing activity, with specific attention paid to gear configurations and the location of fishing activity.
3. Investigate the possibility of modeling both whale distribution and fishing activity in relation to physical parameters and environmental conditions to better address gaps in data.
4. Investigate alternative models that calculate encounter risk or entanglement risk including models developed for the Canadian[133] side of the Gulf of Maine, and those under development by TRT members.[134]

3. Broader Fishery Changes and Trends over Time

Lobster effort and landings continue to increase in the state of Maine, characterized in the press as undergoing an 80% increase "over the past few years."[135] Rather than tightly controlling

[133] Vanderlaan, A.S.M., R.K. Smedbol, C.T. Taggart. Fishing-gear threat to right whales (Eubalaena glacialis) in Canadian waters and the risk of lethal entanglement. 2011. Canadian Journal of Fisheries and Aquatic Sciences. 68(12): 2174-2193.
[134] http://www.nero.noaa.gov/whaletrp/trt/meetings/2012/Kraus%20et%20al%20comments.pdf

the market by limiting effort (and "product"), as other industries such as Ocean Spray Cranberries have done, prices paid to fishermen are dropping as landings continue to increase from a 2005 high of $4.63/lbs to $2.20/lbs today.[136] A spokesperson for the Maine Lobstermen's Association stated that "between 2011 and 2012 alone, just here in Maine, we sold an additional 20 million pounds of lobsters."[137] Just as landings are increasing in Maine,[138] lobster stocks in southern New England have suffered a decline to such an extent that in 2010, a technical panel of the Atlantic States Marine Fisheries Commission unsuccessfully recommended a moratorium on harvest.[139] NMFS itself forecasts continuing decline in availability of lobsters in southern New England, even as stocks are at "record high abundance and reproduction and survival rates throughout most of the Gulf of Maine and Georges Bank."[140]

The trend of greater availability of lobster off the Maine coast and a decline further to the south will, no doubt, be accompanied by increased effort in areas that are heavily used by endangered whales, including Georges Bank and the larger Gulf of Maine. This will increase risk in areas that are not proposed for stringent measures intended to reduce risk; the increasing landings in Maine further call into question the exemption of Maine state waters. We believe that this is crucial information for NMFS, the Take Reduction Team, and the public to monitor, as changes in climatic conditions and ecosystem structure within the Gulf of Maine may already be influencing both fishing effort and spatial distribution.

The data on landings in the DEIS should better depict not only regional landings, but landings by specific area to better track shifts in effort. The data provided by NMFS in Chapter 9 of the DEIS show increasing landings through 2011 across the northeastern U.S. but with no information regarding shifts in where these landings are occurring within the region. [141] Although groundfish landings are broken out by state and year in Table 9-17, and there are similar tables depicting landings of scup and other fish species, no similar table depicts trends in lobster landings by state across time. This should be remedied.

There is also substantial latent effort in trap/pot fisheries that must be considered because fishermen can rapidly increase the number of traps (and lines) in the water simply by utilizing their full permit allotment. The ability to increase the number of traps in use with no notice confounds efforts to estimate the number of lines in the water in any given area at any given time. The agency must address and reduce this latent effort. Previous studies have called into question the need for such a large amount of lobster gear and suggested both more efficient

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[135] Glut Of Lobster Brings Price To A 20-Year Low In Maine. National Public Radio. Monday, August 12, 2013. Written article available online at http://hereandnow.wbur.org/2013/08/12/lobster-price-low

[136] "Something fishy is going on in the nation's lobster capitol", NBC News, Business, Sept 1, 2013. http://www.nbcnews.com/business/something-fishy-going-nations-lobster-capital-8C11040946

[137] *Id.*

[138] *See* http://www.maine.gov/dmr/commercialfishing/historicaldata.htm (10% increase in pounds landed between 2011 and 2012).

[139] Lobster Stocks Found Failing. Vineyard Gazette. June 7, 2010. Available at: http://mvgazette.com/news/2010/06/07/lobster-stocks-found-failing

[140] Fish Watch. Seafood Facts. American Lobster. NOAA. Undated (accessed September 1, 2013) Available at: http://www.fishwatch.gov/seafood_profiles/species/lobster/species_pages/american_lobster.htm

[141] DEIS at 9-59.

financial returns and a conservation benefit to whales by reducing gear use in the lobster fishery.[142]

K. "Other Special Measures"

NMFS proposes to add language to clarify 50 C.F.R. § 229.32(i)(2) to require consultation with the Take Reduction Team, prior to *Federal Register* publication of proposed changes in these regulations.[143] We agree that the TRT should be consulted; however, we wish to make it clear that this consultation must involve a dialogue, specify the reasons for the changes and proposing alternatives, and allow for dissent by the Team. Consultation should not be construed to mean an informational presentation to the TRT of a decision that the agency has already made and is presenting as a *fait accompli*.

Additionally, we question whether the "other special measures" provision comports with the MMPA. Section 118 of the MMPA specifies the process required when the agency amends a TRP. The agency "shall amend the take reduction plan and implementing regulations . . . in accordance with the procedures in [Section 118] for the issuance of such plans and regulations." The procedures for plan issuance specifically require the agency to publish "proposed regulations . . . for public review and comment." 16 U.S.C. § 1387(f)(7)(B). The agency may then issue a final plan and implementing regulations. *Id.* § 1387(f)(7)(C). Accordingly, the "[o]ther special measures" provision, which purportedly allows the agency to revise TRP requirements simply "through a publication in the Federal Register," violates these procedural requirements, as it amends the TRP without "public review and comment." 50 C.F.R. § 229.32(i)(2). While we appreciate the need to move quickly when conservation issues arise, the MMPA specifically provides the agency with authority to take emergency actions to promote conservation as appropriate. *See* 16 U.S.C. § 1387(g).

L. The DEIS Is Inadequate

The National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 *et seq.*, requires that NMFS create a "detailed statement" evaluating the environmental impacts of the proposed rule, which constitutes a major federal action significantly affecting the human environment. A central purpose of NEPA is to assure that federal decision-makers consider the environmental consequences of their actions before a decision to act is made and provide for "[a]ccurate scientific analysis, expert agency comments, and public scrutiny" of agency decisions. 42 U.S.C. § 4332(C); 40 C.F.R. § 1501.1; *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 371 (1989) (NEPA ensures that "the agency will not act on incomplete information, only to regret its decision after it is too late to correct").

Under NEPA, federal agencies are required to take a "hard look" at environmental consequences in order to integrate environmental impacts into the decision making process. *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n. 21 (1976). An Environmental Impact Statement (EIS) under NEPA must evaluate: (i) the environmental impact of the proposed action, including

[142] Myers, R.A., S.A. Boudreau, R.D. Kenney, M.J. Moore, A.A. Rosenberg, S.A. Sherrill-Mix, and B. Worm. 2007. Saving endangered whales at no cost. Curr. Biol. 17(1): R10–R11.
[143] *See* 78 Fed. Reg. at 42,658.

the cumulative impacts; (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented; (iii) alternatives to the proposed action; (iv) the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. 42 U.S.C. § 4332(2)(C).

1. Failure to Consider Adequate Range of Alternatives

The "heart" of the NEPA process is an agency's duty to consider "alternatives to the proposed action" and to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. §§ 4332(2)(C)(iii), 4332(2)(E). For example, Council on Environmental Quality (CEQ) regulations require the agency to "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." 40 C.F.R. § 1502.14(a). "A 'viable but unexamined alternative renders [an] environmental impact statement inadequate.'" *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 814 (9th Cir. 1999).

While we appreciate the efforts the agency has made to consider various options, including trawling up, closures, and gear modifications, NMFS has not provided a sufficiently wide variety of alternatives in its proposed rule. When comparing the impacts of the various alternatives, annual reduction in co-occurrence (assuming 100% suspension) ranges between 35.8% and 41.7% coast-wide – suggesting there are relatively minor differences in impacts between the alternatives.[144] At the very least, and as we specifically requested in our April 2012 scoping comments, the agency should evaluate an alternative that reduces co-occurrence score by 50%, as mortality and serious injury for both right whales and humpback are currently twice PBR.[145]

Additionally, the agency should have considered an alternative that mandates reductions in the amount of gear that can be used and the seasons in which it is fished. Research examining the catch of lobsters in Maine and Canada concluded that there is far more effort in the U.S. than is needed to obtain the same level of catch.[146] Accordingly, seasonal closures and trap reductions could provide substantial benefit to endangered whales while having little economic impact on fishermen.[147] The authors of a 2007 study stated that "if Maine restricted its fishing season to 6 months and reduced the number of traps by a factor of 10, the same amount of lobster could be landed with greatly reduced risk to right whales and other species."[148] We understand that this may be controversial, as the study authors themselves acknowledge; however, this appears to be a strategy for management that would substantially reduce risk while having

[144] DEIS at 5-10.
[145] *See supra*, Section B.
[146] Myers et al. 2007.
[147] *Id.*
[148] *Id.*

comparatively little economic impact. Given recent press coverage of the falling prices for lobster due to the glut in the market, this would seem to be a win-win option.[149]

Moreover, NMFS must consider an alternative that more fully addresses gillnets. For example, the agency "decided to narrow the scope of the proposed rule to focus on the reduction of vertical lines from trap/pot gear instead of both trap/pot and gillnet gear" in the Northeast.[150] The agency must consider an alternative that evaluates the risk reduction benefits of closing areas in the Northeast to both trap/pot and gillnet fishing. Further, as noted in Section (I) above, we submitted a detailed, recommended gear marking scheme with our February 3, 2012 comments, but the agency only considers a single marking scheme in its DEIS. NMFS's failure to consider an adequate range of alternatives violates NEPA. 40 C.F.R. § 1502.14(a).

2. Failure to Adequately Consider Cumulative Impacts

Under NEPA, agencies are required to consider a full range of environmental impacts, "whether direct, indirect, or cumulative." 40 C.F.R. § 1508.8. Cumulative impacts are:

> impact[s] on the environment which result[] from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Id. § 1508.7; *see Native Ecosystems Council v. Dombeck,* 304 F.3d 886, 895 (9th Cir. 2002) ("NEPA always requires that an environmental analysis for a single project consider the cumulative impacts of that project together with "past, present and reasonably foreseeable future actions.").

Projects need not be finalized before they are reasonably foreseeable. *Northern Plains Resource Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1079 (9th Cir. 2011). Further, the impacts of the "other actions" considered in the cumulative impact analysis need not be directly caused by the project. *See Nat. Res. Def. Council. v. Hodel*, 865 F.2d 288, 298 (D.C. Cir. 1988) (cumulative impact assessment of an Outer Continental Shelf (OCS) oil and gas leasing activity must consider the cumulative impacts of "simultaneous OCS development in different areas" without requiring that such other OCS development be *caused* by the proposed leasing activity). Consideration of cumulative effects pursuant to NEPA requires "some quantified or detailed information," because "[w]ithout such information, neither the courts nor the public, in reviewing the [agency's] decisions, can be assured that the [agency] provided the hard look that it is required to provide." *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1379 (9th Cir. 1998); *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 993–94 (9th Cir. 2004).

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[149] Glut Of Lobster Brings Price To A 20-Year Low In Maine. National Public Radio. Monday, August 12, 2013. Written article available online at http://hereandnow.wbur.org/2013/08/12/lobster-price-low

[150] 78 Fed. Reg. at 42,655.

As described below, NMFS's DEIS fails to adequately consider the cumulative impact of several projects and proposals that will affect sea turtles, right whales, humpback whales, fin whales, and their habitats, as well as the fisheries regulated under the ALWTRP.

a. Inadequate Consideration Fishery Management Actions that Affect Gillnet Effort

In Chapter 3 of the DEIS, NMFS states that, largely because the trap/pot industry accounts for a larger number of vertical lines in the water column than the gillnet fishery, "the proposed gear modifications and setting requirements target just the trap/pot industry."[151] Other than gear marking requirements, no changes in management are proposed for gillnets. Nonetheless, numerous fishery management actions that will likely increase the effort of the gillnet fisheries – and the concomitant risk – are not addressed by the proposed rule or discussed in the DEIS. This is particularly true for the Northeast and the mid-Atlantic.

Specifically, although NMFS discusses Amendments 18 and 19 to the Northeast groundfish management plan, it fails to discuss or consider the implications of these and other amendments and framework adjustments. For example, Framework 48 allowed sectors to apply for exemptions that would permit them to fish in substantial portions of long-closed areas.[152] These closed areas were originally adopted not only to reduce groundfish mortality, but also serve as lower risk areas for a variety of protected marine species. Areas proposed for new fishing effort under Framework 48 include an area off the Great South Channel and the Western Gulf of Maine closure – areas of seasonal high use area for right whales, according to NMFS data.[153] Fishing effort that shifts to, or increases in, the re-opened areas is likely to expose fin, right, humpback, and minke whales to additional risk of entanglement in vertical lines used by gillnets that were previously prohibited in these closed areas.

Additionally, NMFS has also approved an exemption that allows for the use of gillnets targeting spiny dogfish in high-use right whale habitat. It is reasonable to expect a dramatic increase in effort, since vessels no longer need to use their limited "days at sea" allotment if they are targeting dogfish.[154] This increase in directed effort is not discussed in the DEIS. In fact, the DEIS only discussed dogfish effort through 2005,[155] and does not address recent and significant increases in quotas and landings of dogfish.[156] The annual increase in quota of more than 5 million pounds over the prior quotas will increase effort, as can be seen clearly in landings

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[151] DEIS at 3-2.
[152] NEMFC, 2012. Framework Adjustment 48 to the Northeast Multspecies FMP Draft Management Measures. New England Fishery Management Council, in consultation with the Mid-Atlantic Fishery Management Council and National Marine Fisheries Service. December 13, 2012. Available at: http://www.nefmc.org/nemulti/index.html; NMFS/NERO Northeast multi-species Fishery Regulations for the 2013 fishing year, at 6. Available at: http://www.nero.noaa.gov/nr/2013/April/13mulfw48fw50phl.pdf
[153] Right Whale Sightings Data. Available at http://www.nefsc.noaa.gov/psb/surveys/
[154] NMFS/NERO. Holders New Spiny Dogfish Exemption Areas East and West of Cape Cod Effective Date: June 1, 2013. Available at: http://www.nero.noaa.gov/nr/2013/May/13sdogeaewccphl.pdf
[155] DEIS at 9-121.
[156] Dogfish Increasingly Important to Cape Fleet. Wicked Local. November28 2012. Available at: http://www.wickedlocal.com/brewster/photos/x35743517/Dogfish-increasingly-important-to-Cape-fleet

increases that began in 2012. In that year, a single sector in Cape Cod announced that, although its members had caught 1.2 million pounds of dogfish in 2010, by November 2012, they had already caught 3.8 million pounds with additional time and quota remaining in the fishing season.[157]

The EIS must address these likely changes in gillnet effort – and entanglement risk – that have or will result from the re-opening of long-closed groundfish management areas, increased quotas on dogfish, and other fishery management actions.

b. Inadequate Consideration of Changes in the Management of Black Sea Bass in the Southeast

Although Chapter 9 of the DEIS discusses the trap/pot fishery for black sea bass from Cape Hatteras to Cape Canaveral, it misleadingly states that the most recent amendment is 18A. NMFS summarizes the likely effect of this amendment, stating "[b]ecause the number of trap pots and participants was reduced, the potential entanglement risk from this gear type may be reduced provided remaining fishermen do not increase their effort. However, if the reduction in participants and pots increases effort among the remaining participants or extends the fishing season so that it overlaps with right whale calving season, the entanglement risk could remain the same or increase."[158]

The DEIS fails to mention that the South Atlantic Fishery Management Council passed, and NMFS has itself proposed, increasing the annual catch limits for black sea bass.[159] Along with the significant increase in quota, Amendment 19 would prohibit black sea bass pots from November 1 through April 30 of each year, specifically to prevent increase entanglement risk to right whale mothers and calves.[160] While this would seem to obviate any additional risk, we must point out – and the DEIS must address – the Council's action in its June 14, 2013 meeting when it voted to "direct staff to begin development of a regulatory amendment that would *remove the November 1 to April [Black sea bass] pot closure*." [161] Further, the agenda announced for the Council's upcoming Snapper-Grouper Committee meeting on September 17-18, 2013 states that the Committee will discuss "Regulatory Amendment 16, pertaining to the removal of the [seasonal] prohibition of Black Sea Bass pots."[162] This is a foreseeable impact that must be addressed as it would pose risk to both humpback and right whales. 40 C.F.R. § 1508.8. And as we have noted, NMFS should adopt the seasonal closure of the commercial black sea bass pot fishery under the ALWTRP and the MMPA, rather than subjecting right whale conservation to the vicissitudes of Fishery Management Council actions.

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[157] *Id.*
[158] DEIS at 9-89.
[159] 78 Fed. Reg. 39,700 (July 2, 2013).
[160] *Id.*
[161] South Atlantic Fishery Management Council. Stuart, FL. June 14, 2013. Summary of Approved Actions (emphasis added). Available at: http://www.safmc.net/LinkClick.aspx?fileticket=bqXBBiQUyj8%3D&tabid=788
[162] 78 Fed. Reg. 52,506 (Aug. 23, 2013).

c. Inadequate Consideration of Intense Ocean Noise

Chapter 9 of the DEIS discusses potential impacts from noise pollution, listing as sources ship and boat propeller noise; drilling, blasting, and dredging; acoustic deterrent devices used by fish farms and fishing vessels; sonar and airguns used in seismic exploration; and the use of low- and mid-frequency sonar in military operations. However, the agency fails to consider and discuss several other significant sources of noise.

Although the DEIS notes the noise generated by the Navy's SURTASS LFA, it does not discuss the noise that will be generated by the omnibus Atlantic Fleet Training and Testing (AFTT) program that will begin in 2014. The Navy has predicted that this program, which will utilize a variety of noise generation sources, including the detonation of explosives, will result in close to 200 deaths of whales and dolphins, 11,267 serious injuries and 1.89 million injuries of marine mammals (including temporary hearing threshold shifts) over a five year period. Injuries are predicted to affect species that are the subject of this rulemaking, including temporary hearing threshold shifts in close to 3,000 fin whales, over 1,000 humpback whales, and 60 right whales. Permanent threshold shifts are predicted to occur for both humpback and right whales.[163] The DEIS must address this impact in its discussion of cumulative impacts.

Additionally, the agency fails to address the intense ensonification of feeding habitats due to fishery research. A prototype acoustic survey technology has been tested and used with the intent to clear up disputes over fish biomass for managed fisheries. The impacts of this technology were seen in the testing of Ocean Acoustic Waveguide Remote Sensing (OAWRS). Researchers studying whales for another purpose detected significant behavioral changes as a result of the noise from this technology that was being used roughly 200 km from the whales.[164] The researchers concluded that:

> The lack of humpback whale song during the OAWRS experiment was the most substantial signal in the data. Our findings demonstrate the greatest published distance over which anthropogenic sound has been shown to affect vocalizing baleen whales, and the first time that active acoustic fisheries technology has been shown to have this effect. The suitability of Ocean Acoustic Waveguide Remote Sensing technology for in-situ, long term monitoring of marine ecosystems should be considered, bearing in mind its possible effects on non-target species, in particular protected species.[165]

We agree. The EIS must address this technology and its impacts.

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[163] Atlantic Fleet Training and Testing Final EIS/OEIS. August, 2013. At table 3.4-15 Available at: http://aftteis.com/Portals/4/aftteis/FEIS/Volume/AFTT_FEIS_Volume_2_2013.pdf

[164] Risch, D., P.J. Corkeron, W.T. Ellison, S.M. Van Parijs. 2012. Changes in Humpback Whale Song Occurrence in Response to an Acoustic Source 200 km Away. PLoS ONE 7(1): e29741. doi:10.1371/journal.pone.0029741. Available at: http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0029741

[165] *Id.*

d. Inadequate Consideration of the Dramatic Increase in Offshore Alternative Energy Development

Among activities that may adversely affect species subject to this plan, NMFS has not addressed the substantial impacts that are likely from the wind and wave energy projects either proposed or approved along the Atlantic coastline from Florida through Maine.[166] The programmatic EIS undertaken by the Bureau of Ocean Energy Management (BOEM) acknowledges that there will be adverse impacts from site surveys, construction of wind energy generating sites, and operational noise levels.[167] Among other impacts, BOEM states that these activities may cause auditory masking or interference with socialization, foraging or predator avoidance.[168] Furthermore, "interturbine spacing may be as little as 12 m (40 ft.) at facilities with linear turbine placement. Such a placement scheme could effectively create a wall of mooring cables, increasing the potential for collisions and entanglement and thus injury to large marine mammals moving through the area" and "[d]epending on the species affected, entanglement may result in minor to moderate impacts to most marine mammals but moderate to major for endangered or threatened species, such as the North Atlantic right whale."[169]

In addition, there is a significant likelihood of displacing marine mammals from key migratory routes, breeding areas, feeding areas, or calving areas.[170] BOEM acknowledges that displacement increases energetic costs for migratory animals and "if sited in important feeding or calving grounds could also displace individuals from these important habitats, which could result in population-level effects to some species. While it is not known how marine mammals might respond to the presence of an operating current energy facility, there is a potential for minor to moderate impacts to some species, especially those that are threatened or endangered and utilize specific areas for important portions of their life histories."[171] Indeed a comparison of the mapped locations of proposed and approved sites for each state,[172] overlaid with right whale distribution as depicted by NMFS right whale sightings archives,[173] shows a clear and substantial overlap of these facilities with the distribution of right whales, particularly south of Massachusetts. The site approved for development off Massachusetts and Rhode Island was the site of large aggregations of right whales in the spring of 2010 and 2011.[174] Similarly, project proposals for the mid-Atlantic overlap sizeable annual aggregations of humpback whales that are the subject of a vital whale watch industry from New Jersey through Virginia.

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[166] BOEM Smart from the Start. Available at: http://www.boem.gov/Renewable-Energy-Program/Smart-from-the-Start/Index.aspx and http://www.boem.gov/Renewable-Energy-State-Activities/

[167] BOEM. Programmatic Environmental Impact Statement for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf Final Environmental Impact Statement Volume II: Chapter 5 (Oct. 2007). US. Department of the Interior, Minerals Management Service. Available at: http://www.boem.gov/Renewable-Energy-Program/Regulatory-Information/Guide-To-EIS.aspx

[168] *Id.* at 5-274.

[169] *Id.*

[170] *Id.* at 5-275.

[171] *Id.*

[172] http://www.boem.gov/Renewable-Energy-State-Activities/

[173] http://www.nefsc.noaa.gov/psb/surveys/

[174] *Id.*

In its Environmental Assessment (EA) for the project site south of Massachusetts, BOEM stated that it "anticipates that temporary adverse impacts equivalent to Level B harassment from noise will affect ESA-listed marine mammals and sea turtles during HRG survey and pile driving activity."[175] BOEM discussed the alarm responses evoked in experimentally exposed right whales and the complete cessation of normal activity during the test.[176] Although BOEM acknowledges in the EA that there have been several recent years with large groups of right whales in the vicinity of project activities, most of their conclusions regarding impact are based on a longitudinal systematic sightings database that does not include these years, and that BOEM acknowledges is based on limited survey effort in the area that may not reflect true distribution and density.[177]

Pile driving that accompanies construction of offshore wind is an intense impulsive noise that BOEM states is "audible to these marine mammals at very long ranges of more than 100 km, and possibly up to more than a thousand kilometers." Although displacement of bowhead whales up to 16 km from construction activities is well documented,[178] and European windfarm construction caused complete abandonment of habitat by harbor porpoise, BOEM did not deign to speculate on similar displacement along the U.S. east coast. Should some displacement occur (as seems likely) it may force migratory right and humpback whales into adjacent areas outside of the project site, where fishing activities and shipping are more concentrated, thereby elevating risk of serious entanglement in vertical lines. This should be discussed in this EIS as a foreseeable, cumulative impact.

Sites that are proposed for offshore of Tybee Island, Georgia and offshore of Florida raise the added concern of the possibility of harassment, displacement, and harm to newborn calves in this and other offshore wind energy projects proposed as far north as North Carolina. Loud acoustic surveys and development in this area pose an even greater threat to a vulnerable demographic that represents the future reproductive capacity of the species in this area that NMFS has declared "core calving habitat.[179]" This risk must be addressed in the EIS.

The discussion of cumulative impacts must address impacts from the noise that will be generated by surveys, construction, and operation of offshore wind and wave projects, including a discussion of the consequences of displacement of animals into even more risk-prone areas as a result of these activities.

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[175] BOEM. 2012. Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Massachusetts Environmental Assessment. U.S. Department of the Interior. BOEM. Available at: http://www.boem.gov/uploadedFiles/BOEM/BOEM_Newsroom/Library/Publications/2012/BOEM-2012-087.pdf

[176] *Id.* at 145.

[177] *Id.* at 132.

[178] Southall, B.L., A.E. Bowles, W.T. Ellison, J.J. Finneran, R.L. Gentry, C.R. Greene, D. Kastak, D.R. Ketten, J.H. Miller, P.E. Natchigall, W.J. Richardson, J.A. Thomas, P.L. Tyack. 2007. Marine mammals noise exposure criteria: Initial scientific recommendations. Aquatic Mammals. 33(4):1-521.

[179] 72 Fed. Reg. 34,632, 34,636 (June 25, 2007) (NMFS characterizing the Southeast gillnet restricted area, which extends to the southern border of North Carolina, as a "substantial and core portion of the right whale calving area").

e. Inadequate Discussion of the Impacts from Entanglement

In Chapter 9 of the DEIS, NMFS briefly notes that impacts can result from chronic entanglement, but the only citations are to work that is, in most cases, more than 15 years old,[180] even though newer published research better characterizes the problem. Poor body condition in right whales is a serious limitation to reproductive success. Blubber thickness, which can be affected by chronic entanglement, is also critical to reproductive success.[181] Chronic entanglement causes substantial extra drag in right whales,[182] reducing body condition severely at times. Chronic entanglement is likely one of the major contributors to reproductive failure in right whales, and probably all large whales. Knowlton suggests that "in addition to the documented deaths and disappearances of animals observed bearing fishing gear, the sub-lethal effects of severe wounding or repeated entanglements may include reduced reproduction and increased susceptibility to disease."[183] The chronic entanglement of whales and their subsequent slow deaths present not only a biological threat but is also a significant animal welfare concern.[184] NMFS must address this updated understanding of risks from chronic entanglement.

f. Inadequate Discussion of Impacts to Sea Turtles

The DEIS's discussion of cumulative impacts to endangered and threatened sea turtles is inadequate.[185] Sea turtles are significantly adversely affected by entanglement in the fisheries addressed by the proposed rule, as well as other fisheries throughout the species' ranges. Although, as we stated above, the proposed rule necessarily focuses on reducing entanglement risks to critically endangered right whales and other endangered whale species, NMFS must not shirk its obligations under both NEPA and the ESA to analyze and fully describe the effects of the proposed rule and the various Alternatives on sea turtles.

To ensure the adequacy of its cumulative impacts analysis for sea turtles, in its FEIS, NMFS must expand its analysis of sea turtle impacts in Chapter Four as well as the sea turtle section in Chapter Nine. NMFS's description of the affected environment regarding sea turtles[186] must be significantly expanded to better inform the cumulative impacts analysis. The DEIS does not reflect the best available information on sea turtle distribution and abundance, particularly with respect to leatherbacks and loggerheads, nor does it present the best available

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[180] DEIS at 9-8, citing only Demaster and Angliss (1998).
[181] Miller, C., D. Reeb. P. Best., A. Knowlton, M. Brown, M. Moore. 2011. Blubber Thickness in Right Whales Eubalaena glacialis and Eubalaena australis related with reproduction, life history status and prey abundance. Marine Ecology Press Series.438. 267-283. Available at: http://www.int-res.com/abstracts/meps/v438/p267-283/
[182] Van Der Hoop, J., M. Moore. A. Fahlman, A. Bocconcelli, C. George, K. Jackson, C. Miller, D. Morin, T. Pitchford, T. Rowles, J. Smith, B. Zoodsma. 2013. Behavioral Impacts of Disentanglement of a Right Whale Under Sedation and the Energetic Costs of Entanglement. Marine Mammal Science. doi: 10.1111/mms.12042 Available at: http://onlinelibrary.wiley.com/doi/10.1111/mms.12042/full
[183] Knowlton et al. 2012.
[184] Moore. M. and J. van der Hoop. 2012. The Painful Side of Trap and Fixed Net Fisheries: Chronic Entanglement of Large Whales. Journal of Marine Biology. V.2012. 4 pp. Available at: http://www.hindawi.com/journals/jmb/2012/230653/
[185] DEIS at 9-47 – 9-53.
[186] DEIS at 4-80 – 4-86.

information on sea turtle entanglements. NMFS is certainly in possession of much more detailed information, as evidenced by its significantly longer and more detailed analyses of sea turtles in documents such as the May 2013 Draft Batch BiOp.[187]

In particular, NMFS must include better estimates of sea turtle presence and abundance in areas to be affected by the proposed rule as well as better estimates of rates of sea turtle bycatch and entanglement in different types of fishing gear, particularly pot/trap gear using vertical lines. We note for example that the Draft Batch BiOp includes critical data omitted from the DEIS, such as the fact that "[f]rom 1990 to 2000, 92 entangled leatherbacks were reported from New York through Maine. . . . Additional leatherbacks stranded wrapped in line of unknown origin or with evidence of a past entanglement."[188] The Draft Batch BiOp further states that "[a] review of leatherback mortality documented by the STSSN in Massachusetts suggests that vessel strikes and entanglement in fixed gear (primarily lobster pots and whelk pots) are the principal sources of this mortality."[189] *Id.* It is vital that NMFS include reports not only from state stranding networks but especially from the Northeast Region Sea Turtle Disentanglement Network. Throughout, NMFS must present and analyze quantitative data wherever available.

NMFS's sea turtle cumulative impacts discussion is also deficient because it omits entirely any analysis of the reasonably foreseeable effects of the pending critical habitat designations in both the terrestrial and marine environments for the Northwest Atlantic Distinct Population Segment of loggerheads.[190] *See* 40 C.F.R. §§ 1507.7 - 1508.8; *Native Ecosystems Council*, 304 F.3d at 895. The Final EIS should correct this error.

Conclusion

Despite efforts and past measures to protect endangered large whales, serious injury and mortality due to entanglement remains a serious threat that impedes the recovery of these imperiled species. Accordingly, the MMPA and ESA mandate that NMFS amend the ALWTRP to reduce serious injury and mortality to below PBR, approaching a zero mortality level. To achieve this reduction, seasonal closures and trawling up are essential. Both published science and the co-occurrence model support seasonal closures in Jordan Basin, Jeffreys Ledge, and Massachusetts Restricted Area #1.

Accordingly, among the alternatives currently presented, we, as the conservation members of the TRT, believe Alternative 5 is preferable. Alternative 5 projects the highest reduction in co-occurrence score among the alternatives, the closure areas proposed under

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[187] *See* Draft Batch BiOp at 77-117 (Section 4.3, status of sea turtles), available at http://www.nero.noaa.gov/mediacenter/2013/05/draft_nero_batched.pdf. In pointing out the much greater level of detail on sea turtles contained in the Draft Batch BiOp, we do not mean to imply that the Draft Batch BiOp is factually and legally adequate in its analysis; it is, however, far more comprehensive than the DEIS.

[188] *Id.* at 101.

[189] *Id.*

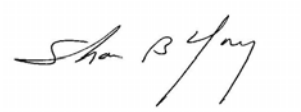
[190] *See* 78 Fed. Reg. 18,000 (Mar. 25, 2013) (U.S. Fish and Wildlife Service proposed rule designating terrestrial critical habitat); 78 Fed. Reg. 43,006 (Jul. 18, 2013) (NMFS proposed rule designating marine critical habitat).

Alternative 5 are both geographically and temporarily appropriate, and the Alternative appropriately requires minimum traps per trawl.

However, as detailed above, we find the agency's ALWTRP proposal and DEIS insufficient in several regards. In order to further reduce entanglement risk, the agency must remove proposed exemption areas for Maine and New Hampshire waters. These closures are unwarranted and pose an elevated risk to sea turtles and whales. The agency also must adopt additional risk reduction measures for the mid-Atlantic and Southeast to ensure protection of high risk areas for humpbacks and right whale mother-calf pairs. Gear marking should be extended to include additional color marking by fishery or region, as well as additional markings for line greater than 130 feet in length. In addition, the agency must fully address risk from gillnets, beyond just gear marking requirements. The co-occurrence model must include all relevant and available data, including comprehensive fishery information, and more clearly account for the data gaps and uncertainty.

We appreciate the agency's consideration of these comments as it moves forward with rule development. Please contact any of us if you have questions regarding these comments.

Sincerely,



Sharon B. Young
The Humane Society of the United States

Sarah Uhlemann
Center for Biological Diversity

Regina Asmutis-Silvia
Whale and Dolphin Conservation

April Wobst
International Fund for Animal Welfare

Caroline Good
Duke University

Jane Davenport
Defenders of Wildlife

Appendix A

Proposed Gear Marking Scheme – February 3, 2012 Comment

Trap/pot Fisheries

Area	Color 1	Color 2
ME	Red	Red
ME exemption	Red	None
Non-ME LMA1	Red	Orange
LMA 2	Red	Yellow
LMA 3 (inc. LMA 2-3 Overlap)	Red	Black
Mid Atlantic (NY-NC)	Blue	Yellow
SE Blue Crab (SC-FL)	Orange	Blue
SE Sea Bass (SC-FL)	Orange	Yellow
SE other (SC-FL)	Orange	None

Gillnet Fisheries

Area	Color 1	Color 2
LMA 1	Green	None
ME Exemption	Green	Red
LMA 2	Green	Yellow
LMA 3 (inc. LMA 2-3 Overlap)	Green	Black
Mid Atlantic (NY-NC)	Blue	None
SE (SC-FL)	Green	Yellow
Shark Gillnet	Green	Blue

Appendix B

Analysis of line recovered from baleen whales to estimate the probability that marked line would have been identified – from February 3, 2012 Comment

The aim of the analysis was to estimate the probability that a section of recovered line would contain a mark based on data on actual recovered lines and different marking intervals.

A total of 28 cases were examined from recovered line in the period 2005-2009 involving fin (n=1), minke (n=4), humpback (n=15) and right (n=8) whales. Multiple sections of line were recovered in six of these cases. The lengths of rope recovered varied from 5 to 1200ft. Six entanglements that occurred during this time period that had an associated gear analysis in the report were not included. These cases involved entanglements when actively hauling or working with gear when the whale was immediately freed and released. In these cases it was unclear in the gear analysis if gear length reported truly represented an amount of gear caught on the whale or just the total amount set in the water. Therefore, these cases were not included for analysis since they potentially represented a different type of data from the other 28 cases in which line length was recorded according to what was removed from the whale.

There were no significant differences between the lengths of rope recovered by species of whale (ANOVA, p=0.35) or between the first and second pieces when more than one section of line was recovered (ANOVA, p=0.34).

The recovered lengths were transformed with log(length in feet) which gave an approximately Normal distribution (Figure 1), with the average(log(length))=1.88, median (log(length))=1.86 and stdev (log(length)=0.61)

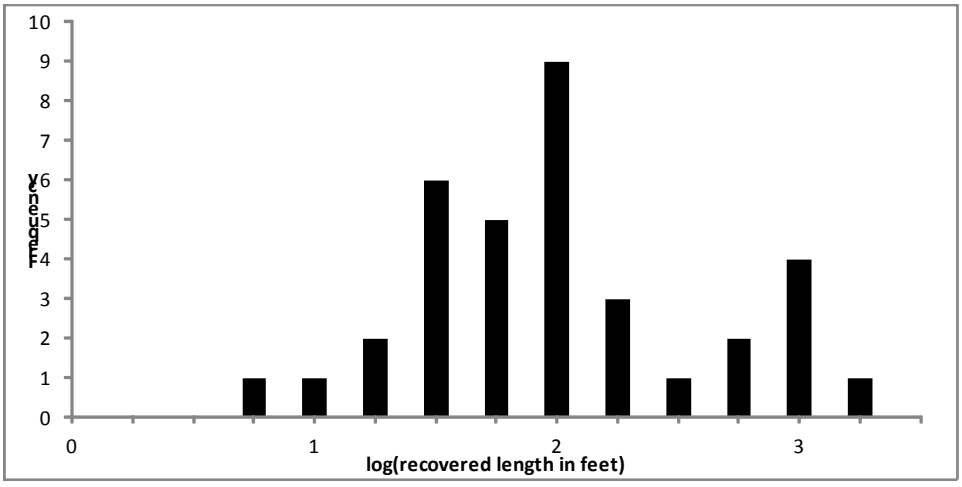


Figure 1. Frequency distribution of log(recovered length).

For a given marking interval L, the probability p that a recovered length of line of length R will contain a mark is given by $p=R/L$. For $R \geq L$, $p=1$.This assumes that the line is equally likely to break at any point in relation to the marks and ignores what happens at each end of the line.

Using the mean and standard deviation derived from the log(length) data to model recovered line lengths with a normal distribution, the probability that a piece of recovered line will contain a mark was estimated for different marking intervals.

Table 1. Probability that recovered line will contain a mark for different marking intervals

Marking interval (ft)	Probability that recovered line will contain a mark
20	0.92
30	0.88
40	0.84
50	0.80
60	0.77
70	0.73
80	0.71
90	0.68
100	0.65
150	0.56
200	0.49

ATLANTIC OFFSHORE LOBSTERMEN'S ASSOCIATION
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August 28, 2013

Mary Colligan
Asst. Reg. Admin. For Protected Species
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55 Great Republic Drive
Gloucester, MA 01930

Dear Mary,

The following comments are on behalf of the Atlantic Offshore Lobstermen's Association (AOLA) in response to NOAA Fisheries request for comments on the Draft Environmental Impact Statement (DEIS) and Proposed Rule for Amending the Atlantic Large Whale Take Reduction Plan Vertical Line Rule.

A very troubling issue associated with the entire Large Whale process is that due to the lack of good quality data, there is an inability to accurately quantify very much of anything. This is one area in which the scientists, environmentalists, and the fishing industry agree. Throughout this document and throughout the Large Whale regulatory program it cannot and should not be dismissed that past and impending federal regulations are being promulgated with data, both whale and socioeconomic, that is minimal, poor, and in some cases extremely flawed. For example, section 4.1.1.3 of the DEIS, (*p. 4-6*) identifies the existence of 299 right whales in 1998 (*Kraus et al., 2001*), yet the following paragraph brings forward data that 385 right whales were presumed alive at the end of 1998 (Best et al., 2001, *pg. 4-6*). Considering the serious socioeconomic impacts endured by the fishing industry, the ongoing push for regulations, the fact that a right whale is an *endangered species*, all combined with the exorbitant amounts of federal dollars spent on right whale research, one would hope for a more accurate picture of the actual population of the species targeted for protection! With further concern to population data, Section 4.1.1 of the DEIS indicates "that 425 individually recognized (right) whales in the catalog were known to be alive during 2009, (*waring et al., 2013*)….and another statement describing the same year indicates that, "the minimum population size is 444 (*p. 4-2*)," further, the following Section 4.1.1.1 states, "An additional interpretation of paternity analyses is that the population size may be larger than previously thought. Fathers for only 45% of known calves have been genetically determined. However, genetic profiles were available for 69% of all photo-identified males (*Frasier 2005*). The conclusion was that the majority of these calves must have different fathers that cannot be accounted for by the unsampled males and the population of males must be larger (Frasier 2005); although this inference of additional animals that have never been captured photographically." (*DEIS p. 4-5*).

To summarize and further point out the complexity and frustration of this inadequate data situation; when I began representing the Offshore Lobster fleet, as a member of the LWTRT, scientists informed the participants there were between 250 and 300 right whales in existence (*personal communication).* "Between 1980 and 2000, a total of 222 right whale births were documented in the western North Atlantic. Seven of these 222 whales are known to have died." (*DEIS Section 4.1.1.2, p. 4-5)* Also, it is important to note in that according to the 2012 Stock assessment Report entitled, *NORTH ATLANTIC RIGHT WHALE (Eubalaena glacialis): Western Atlantic Stock,* "Based on back calculations using the present population size and growth rate, the population may have numbered fewer than 100 individuals by 1935 when international protection for right whales came into effect (Hain 1975; Reeves et al. 1992; Kenney et al. 1995). Further data from that same report indicate that, "adding 19 calves not yet catalogued brings the minimum number alive in 2009 to 444. This number represents a minimum population size." The calculations of population + births – deaths does not

compute. After reviewing stock assessments from 2005 – 2012, certain other inconsistencies were apparent. First and foremost, the overlapping of years and data in each stock assessment was only somewhat troubling, very troubling however, was the whale populations as well as the percentage rate of human-caused mortalities differed in each document, expressly when discussing the exact same time period! For instance, if one agrees to begin with "previous estimates using the same method with the added assumption that whales seen within the previous seven years were alive have resulted in counts of 295 animals in 1992 (*Knowlton et al. 1994)*…..This number represents a minimum population size." (*North Atlantic Right Whale Western Atlantic Stock, December 2012);* and one adds the number of reported right whale production from 1993-2010 of 316 (*North Atlantic Right Whale Western Atlantic Stock, December 2012; Table 1)*, subtracts reported calf mortalities of 21 (*North Atlantic Right Whale Western Atlantic Stock, December 2012; Table 1)*, and after reviewing numerous other right whale stock assessments, to determine the number of human-caused mortalities (to one's best ability, since the data never corresponds from one stock assessment to another), and since there is little justification for the numbers stated, subtracts another 50.6 whales from the overall population, one finds the following:

295+316-21-50.6= **539.4 whales in existence in 2010.** This denotes a difference of (539.4-444) 95.4 whales. When considering socioeconomic impacts of hard-working conscientious individuals, and endangered marine mammals, the possible addition of 95.4 animals into a population from peer review data sources *should* identify a serious data problem, and bring questions upon moving forward! After endeavoring on this exercise, one must ask oneself, are we just dealing with poor, confusing, and multiple streams of data, and/or is this a very bad case of incorrect math? Whatever the case, it cannot be deemed acceptable. This also begs the question; are we even sure that further protective measures are necessary, *especially* those that have serious economic consequences for a small percentage of the fleet? The sad reality is, further measures *will* be implemented; however, it is hoped that the most severe measures are placed on the "back burner" for the time being, especially since data has not yet been gathered on whether the very expensive, heavily impactful sinking groundline exercise has mitigated the problem.

Lobster management areas (being used for whale regulations) were originally created to mirror the socio-economics of the participants within each fishery, as well as the fishery itself within the particular areas. Lobster Management Area (LMA) 3 and issues associated with its participants was
always known to be dissimilar to the other areas, in that, the area is completely in Federal waters, and the fishery itself is much farther offshore than all other lobster areas, hence, the fishing operations differ widely than those of other lobster fishermen. Yet, after all these years, that fact still goes unrecognized. In making socioeconomic determinations for the current DEIS, NMFS utilized the GMRI Lobster Socioeconomic Survey results; these analysis, with regard to the Area 3 fishery were *horribly flawed*. Numerous AOLA members participated and found it extremely difficult to participate, as the questions asked did not pertain to the offshore lobster resource or fishery. Hence, socioeconomic impact analyses in the DEIS and Proposed Rule which resulted from that study, are unquestionably inaccurate.

Further, it cannot and *should not* be taken lightly that, as you are aware, federal regulations regulate individuals and impact their ability to make a living. Socioeconomic negative impacts within section 1.3.3.3 of the DEIS, pg. 1-18, describes pitfalls of the proposed measures and how they may negatively impact an individual's ability to make a living, and are described as follows; increased gear conflicts; additional cost for gear replacement; grappling gear, (thus reducing time spent fishing); increased gear loss (creating more ghost gear for greater risk of entanglement); *safety implications;* competition for fishing grounds (which also cause safety implications over territorial sites); tension; resentment; and conflict (loss of long-time friendships and camaraderie); exclusion from fishing grounds (resulting in lost revenue); stress and anxiety associated with inactivity and lost income (also resulting in further and more serious health issues).

Also noted in the DEIS under 1.3.3.3, pg. 1-18, the positive impacts, as follows; "To the extent that the new ALWTRP regulations successfully protect and restore whale populations, *members of the public who view and photograph whales would benefit from the regulations.* Annual revenues from the New England whale watching industry total approximately $30 million, and studies indicate that consumers' enjoyment increases with the number of whales and species sighted. Consequently, whale watch operators could benefit from increased ridership and revenues as whale populations stabilize or increase."

With all due respect to individuals interested in protecting whales, those who care about whale populations, and those who crafted the NMFS rulemaking documents, the contrast between the above two paragraphs – taken directly from the NMFS DEIS, is abhorrent. To identify the negative impacts which affect a hard-working individual's ability to make an honest living and provide for his family, while laboring to bring food to our nation's, and other nations, dinner tables, and rightfully so, include that those impacts have the ability to affect one's health; while at the same time emphasize the antithesis, positive impact, as allowing people on a whale watch to be able to point, giggle and have an enjoyable day, provides a perverted and out-of-touch viewpoint, that begs for serious reconsideration, indeed!

Finally, overall statements with regard to the total whale populations, socioeconomic impacts, and comments by the environmental community that the vertical line regulations will be a "positive start that will lead to some entanglement risk reduction" (*Jordan Basin Closure Proposal, pg. 1*), are as follows::

A. Whale populations are exploding. Humpback whales are everywhere and continue to increase in population! (Hence, no shortage of happy whale watchers, there!)
B. The right whale population has increased 100% or more, (likely more, since data, and worse yet lack of data, has proven the existence of DNA and whales, yet unknown and unidentified to the scientists) since the ALWTRT process commenced
C. Whale births have increased and numerous measures, including *sinking groundline* is being used by the fishing community which continues to provide a substantial amount of protection and risk reduction for the whales.

economic hardship over many years, and will continue to endure economic impacts for many years to come! Sinking groundline is exorbitantly expensive to purchase; it wears out more frequently, as well, it degrades hauling equipment on lobster vessels. These costs severely impact a lobsterman's bottom line and net income. Therefore, to ignore these on-going impacts in the rulemaking documents, and for the environmental community to be cavalier and dismiss what has already been accomplished is purely insensitive and wrong.

The following comments will deal specifically with Alternative 5, as preferred by NOAA Fisheries in the DEIS and Proposed Rule:

Regarding the numbers of traps per trawl, in order to fish with two endlines: It should be noted that the Area 3 lobster fishery is located approximately 30-200 miles offshore, therefore, the Agency's requirement for ten traps per trawl in order to fish with two endlines in Area 3, from 3-12 miles is a moot point, since there is no part of Area 3 that exists within 3-12 miles.

Biological impacts in the DEIS, Section 1.3.1, discusses the importance of increased numbers of traps per trawl to "reduce the number of vertical lines in the water and thus, benefit large whales by reducing the frequency or severity of entanglement in buoy lines and associated gear." Area 3 fishermen's trawls consist of between 30 – 40 traps per trawl, the highest number of traps per trawl throughout the entire lobster fishery. Each trawl contains only two endlines, and as is widely known by NMFS and the Take Reduction Team (TRT) participants, traps within Area 3 have been reduced by over 30% and will continue to be reduced, through lobster management, by another 25% active

reductions. Additional passive reductions will ensue with an additional 10% conservation tax, resulting from transfers in traps from one fisherman to another. Each transfer will result in 10% of the transferred traps being permanently retired. These are bold strategies used for the sustainability of the lobster resource, however they surely benefit marine mammals by reducing the numbers of traps and amounts of rope in the water and ***must not*** be ignored or taken for granted throughout the whale management process. Prior to the next 25% reduction in traps within Area 3, there were, within the area's 127,129.68 square miles, only .044 endlines per square mile, calculating actual numbers of trap tags purchased. Once the 25% reduction in traps is finalized, using *allocated trap numbers (actual numbers will be far lower),* there will be less than .043 endlines per square mile in Area 3. Actual endline totals in Area 3 after the 25% reduction in traps will be closer to .03. Realizing there are certain times and areas where and when whales are prevalent, surely there is no other lobster area, when at *any time,* that amount of risk reduction to whales can be proclaimed!

Members of AOLA support the requirement to fish with a minimum of 20 traps per trawl within Area 3 from 12+ miles, noting that the fishery actually begins approximately 30 miles offshore.

The new proposal relative to gear marking will provide far greater cost to fisherman than benefit for whales, since there is no guarantee, nor data to suggest, this will increase the ability to identify gear. Three 12" marks on offshore endlines may seem fairly simple, however closer consideration denotes the situation as quite onerous and impractical. Offshore gear is frequently not brought home to the dock; it is hauled and immediately replaced into the ocean, hence the lines are always wet, adding marks or replacing marks is extremely difficult on wet line, and in the offshore environment. Further, an offshore vessel's "territorial grounds" move and change over the course of a fishing year; changes in fishing grounds frequently mean changes in depths, which determine the lengths of endlines. To abide by the proposed regulations, offshore vessels would need to replace groundlines frequently in order to keep marks at the top, middle and bottom of the endlines, otherwise there would be black marks in many varied locations on the endlines, and fishermen could face enforcement issues. This is impractical and costly for several reasons:

1. Carrying thousands of pounds of extra line may cause instability
2. Carrying thousands of pounds of extra line may preclude the ability to haul gear replacements, as needed
3. Splicing new endlines would impact fishing time and the bottom line (including cost of new endlines in order to have marks properly placed)
4. High likelihood of non-compliance due to the above
5. Enforcement issues could ensue if the endlines were not marked exactly as regulated; or due to non-compliance (also problematic for cost v. benefit)

Offshore gear has always been fairly easy to identify, even without gear markings, due to its size. Therefore, additional gear markings on offshore gear seems rather unnecessary.

The proposal to close Jordan Basin to lobster fishing from November 1 – January 31 is unjustified. First and foremost, the process associated with the Jordan Basin Closure proposal should be considered unacceptable by the Fisheries Service. NMFS requested that all TRT members submit proposals to the agency prior to the most recent TRT meeting for review by the agency and TRT members for discussion at the meeting. The Jordan Basin closure was conceived in rudimentary form toward the end of the three-day meeting, as seemingly an afterthought once all other options had been A) fully vetted, and B) exhausted. This late submission provided no time for the members of the TRT to review or fully vet this proposal; in fact, comments on the proposal were necessitated through written comments post-meeting, which was clearly a poor alternative to discussion. Further, this proposal is based on whale "hot-spot" sightings. Members of the TRT, *including authors of this proposal*, voted at the TRT, against using "hot-spot data" for consideration of management actions, and voted unanimously, instead, to utilize a co-occurrence model indicating the simultaneous presence of both whales and fishing gear together in the same location. The Jordan Basin proposal is ***not*** an effective representation of the co-occurrence model. The Proposal denotes a high presence of whales and suggests *any* amount of gear is a risk; this is ***not*** co-occurrence. It is inappropriate to "change the

rules in the middle of the game;" if the TRT voted against a hot-spot analysis, then it is surely unethical and wrong to consider it within this process. This proposal should be disqualified. NMFS hired IEc to study co-occurrence of the lobster fishery and they provided data that little co-occurrence transpired offshore, including within Jordan Basin. Clearly, there is little co-occurrence anywhere offshore, relative to other lobster fishing areas at any time of the year.

Further, it is important to remind the Agency that when sinking groundlines were implemented members of the TRT, which included the makers of the Jordan Basin closed area proposal, voted unanimously that closed areas would no longer be part of the management process due to the extreme amount of risk reduction provided through the implementation of the sinking groundline. The reason Dynamic Area Management (DAMs) and Seasonal Area Management (SAMs) were abolished, which would have most certainly fit into the "co-occurrence" model, was due to closed areas no longer being deemed necessary or pragmatic because sinking groundline was such an enormous step forward toward risk reduction. Clearly, this too, is an example of certain factions trying to change the rules in the middle of the game. It is *wrong and should not be acceptable to the regulating agency.*

Specifically related to the DEIS, *Section 6.3.4.1 Jordan Basin Restricted Area,* unfortunately all data within this section, *other than* that which suggests that the relocation of gear would result in the gear being placed around the perimeter of the closed area (thus, creating greater risk within a known "hot-spot" for whales), is wrong. Further, data (including that which follows) deemed incorrect, should never be used to calculate impacts to an individual's livelihood, as we are all well aware that when considering data – garbage in/garbage out.

A. Not all offshore vessels have an allocation of 1200 traps
B. There are fewer vessels than five fishing in Jordan Basin from November through January, and seldom do they fish their full allocation of gear within the area
C. The estimate of 20 pounds per trap during the closure period is grossly under represented for what is actually landed during that time period

The justification in Section 6.3.4.1 to close Jordan Basin is very poor. Other than much of it being inaccurate, over estimating the amount of gear fishing in the area, and underestimating the economic impact to fishermen, the document clearly states that "complete information on lobster vessel operations in offshore waters is not available, making it difficult to predict how vessels that currently lobster in the Jordan Basin area would respond to the closure." (*DEIS p. 6-33)* Yet it continues on to unknowingly assume that offshore vessels would "likely" relocate rather than suspend fishing during that time of the year; however, the authors have no idea whether there is another area to which that gear can be relocated. It cannot be forgotten that lobster fishing is extremely territorial, and relocation can have economic impacts of its own. All of the data is based on assumptions, yet there is no real data on which to base those assumptions, hence, the economic assumptions are baseless. For instance, the DEIS states, "Absent information on the home ports of the affected vessels, the analysis assumes that the relocation of gear has no material effect on steaming time to and from port; i.e., no additional fuel or time costs are incurred when fishing in the new location." (*Section 6.3.4.1 p. 6-34)* How can assumptions be made "absent information;" I believe that is merely called, a guess, a shot in the dark, or grasping at straws. Clearly, it is not to be considered "data or justification!" Also, calculations were never considered as to the cost of not only moving gear, but also finding new lobster populations on which to fish, where other fishermen are not already fishing.

Also detailed within Section 6.3.4.1 was the following, "For purposes of calculating the impact of relocating gear on fishermen's time, each vessel is assumed to carry a captain and two sternmen. The average number of trips made each week (2.2) is based on data provided by LMA 3 respondents to the GMRI lobster survey. (*p. 6-34, GMRI 2006).* As noted above, the GMRI Socioeconomic Study was "horribly flawed," regarding its resulting data on the Area 3 fishery and its participants. Questions were inappropriately queried and I am aware through personal conversation, various Area 3

lobstermen contacted GMRI to alert them of the problems associated with this survey. The DEIS denotes their calculations using an "assumed" crew of a captain and two sternmen, however, an offshore vessel typically carries a crew of five; also noted is a "weighted average," in determining justification for the proposal, of 2.2 trips made each week. This scenario is virtually impossible for an offshore vessel to steam to the area, haul all the gear present, reset it, steam home, unload, service the vessel, purchase supplies, and make it out there to do the same, twice in one week. Exhibit 6-17, no doubt based on the GMRI Survey, is also exceedingly incorrect.

Focusing only on the issue of endlines and co-occurrence for the moment; using NMFS incorrect data of 6,000 traps within the Jordan's Basin closed area, calculating traps per trawl and total square miles, that formula would provide only .41 endlines per square mile in the 725 square mile Jordan Basin closure area. Using a more correct number of likely traps, the total is reduced to between .25 and .31 endlines. This scenario most certainly does not fit the TRT agreed-upon model of co-occurrence. The Jordan Basin closure, due to the utter lack of true justification, should be disqualified from the Proposed and Final Rules.

Extremely poor data, coupled with environmentalist's desperation to "grasp at straws," creates negative impacts which outweigh any reasons brought forward to close Jordan Basin to lobster fishing. Socioeconomic data used by NMFS when crafting these regulations, as noted above for the offshore fishery, is flawed; therefore, statements such as, "there is no clearly-defined threshold at which annualized costs represent a large enough percent of annual revenues that a vessel operator would cease fishing, or would otherwise suffer social and economic hardship," (*DEIS p. 1-15*) is not only presumptive and incorrect, but entirely insensitive to an individual's ability to make an honest living. A very troubling provision of the entire TRT process and resulting rules, is the inability to quantify the benefits of much of what is being required due to the lack of good data; this is one area in which the scientists, environmentalists and the fishing industry agree. Unfortunately, the lack of data, resulting in the presence of poor suppositions, further complicate good and proper decisions.

Finally, the Atlantic Offshore Lobstermen's Association can support nothing other than Alternative 2, which incorporates NMFS requirements for certain numbers of traps per trawl, minus the gear marking provision within Area 3, for all reasons stated above. Further, AOLA members support an implementation date of June 2015 to allow all those for whom change is necessary, the ability and time necessary to make those changes.

I appreciate the opportunity to comment on the inaccuracies of the data, the absence of co-occurrence, and the severe impacts a closure within Jordan Basin, from November 1-January 31 would create for a small group of individuals. Please feel free to contact me should you have any questions relative to this correspondence.

Sincerely,

Bonnie P. Hyler

Bonnie P. Hyler
Executive Director

National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 01930
Attn: ALWTRP Large Whale Rule

September 13, 2013

To Whom It May Concern,

I attended the public hearing presented by NOAA/ALWTRT representatives on August 19th, 2013 in Gloucester, MA where there was to be a discussion and comment about the 6 alternatives outlined to reduce whale entanglements, based on a co-occurrence model set forth by scientists. These 6 alternatives were described in depth at http://www.nero.noaa.gov/protected/whaletrp/eis2013/index.html with preference given to Alternative 5, which includes heavy closures, gear modification and gear marking. Of the over 1000 pages of statistical analysis, evaluation and proposed implementation found on their website, the representatives at the Gloucester meeting gave, to be generous, maybe a 10-15 minute presentation. They skipped over some crucial breakdown analysis where even by their estimates, it will cause the trap/pot and gillnet fishermen millions of dollars in lost revenue due to these closures and thousands more in proposed gear modification. In my opinion, they did not perform their due diligence in explaining how some of these alternatives will, at least by their calculations, affect fishermen of the Northeast.

It is also my opinion that their research did not include input from fishermen as the costs associated with Alternatives 2-6 are not realistic, not feasible for many fishermen and are completely unnecessary, to the point where it may have an adverse interaction between whales and fishing gear. There are also major flaws in their vertical line co-occurrence model which is the foundation for their statistical analysis leading to this preferred Alternative 5. There are easier, more enforceable measures which fishermen can accommodate to better assess entanglements, actions fishermen already take as their season progresses which would reduce entanglements and reasonable solutions which would not put the potential entanglement of a whale above the safety of a fisherman.

Gear Marking

The most realistic proposal is the gear marking portion of Alternatives 2-6 which increases marking to three 12" sections, color coded by region, evenly distributed from the bottom, middle and top of each vertical line. Vertical lines are currently marked to distinguish lobster pot/trap gear (coded red) from gillnet gear (coded green) with one 4" mark midway down the line. The problem with the current model is that it is too vague for the entanglement data scientists are looking for. In fact, this is the fundamental problem with the take reduction plan timeline. ALWTRP is exploring alternatives to problems which may not exist, including heavy closures and gear modification on areas where entanglements are presumed but not quantifiable. Even in the ALWTRP-DEIS report, (Section 3.1.8) it notes that from 1997-2008, only 10% of entanglement events could be identified by fishery, location and date, continuing on to state, "A stronger gear marking strategy would help answer questions such as when and where entanglements occur." (ALWTRP-DEIS 3-9)

Gear marking will better identify problem areas to which further proposals can be explored. In the mean time, it is irresponsible to risk the safety of the fishermen or their potential revenues based on

lack of data. For example, in December 2009, there was a humpback whale disentangled off Jacksonville, FL - with clearly marked Canadian gillnet gear. (Humpback Whale Stock Assessment Report December 2012 http://www.nmfs.noaa.gov/pr/pdfs/sars/ao2012whhb-gme.pdf p.29) Had the gear not been identified, one may assume the whale was entangled in US or more specifically, Floridian waters. Because of the migration patterns of these whales, entanglements can occur throughout a large range, between International borders, from different fisheries, etc. Common sense says figure out the best solution by properly assessing the problem.

Trawling Up

Included in Alternative 2 and continuing through Alternatives 3-6, is a proposal to increase the amount of traps per trawl in an effort to reduce the amount of vertical lines. Focusing on their preferred alternative (Alternative 5), this is projected to cost the fishery $1,012,000 - $3,265,000 in annual compliance costs (ALWTRP-DEIS Exhibit 8-3; 8-8). Depending on which Alternative is defined, which state, the zone, area or distance from shore, the minimum traps/trawl is anywhere from 2-20 from the 23 defined locations (ALWTRP-DEIS Exhibit 3.1; 3-3 – 3-5). Of these 23 locations, fishermen may have permits to fish in multiple areas and would have to reconfigure their gear accordingly, adjusting groundline length per trawl and using only 1 vertical line if the trawl consists of 5 or less traps. For smaller boats that are only capable of fishing 2, 3 or 5 pot trawls, regulations forcing them to trawl-up to 10 or 20-pot trawls is not feasible and in even making an attempt to become compliant with their available resources would be dangerous. Also, forcing fishermen to use only one vertical line per 5 or less pot trawl will increase the chances of gear loss significantly. It is a common problem for boat traffic or gear conflict to cause the temporary or permanent loss of a buoy, connected to a vertical line, identifying a trawl. Without the option to haul that trawl from a second vertical line, this will inevitably lead to an adverse impact on the environment and the species within that environment in the form of increased ghost gear. Not every trawl can be retrieved from grappling and marine life can become trapped or entangled in ghost gear just as easily as tended gear. It is also common practice to haul a trawl specifically from one set point or another (i.e. East or West) to more effectively haul or improve the safety of hauling in order to deal with tide or inclement weather.

There is necessity in 2 vertical lines per trawl. There are also considerations in lobstering that account for reduced vertical lines, which if NMFS had a real consultation with fishermen, it would be factored in. For the boats that are only capable of fishing a maximum of 5 pot trawls, I can say with near certainty that these fishermen are also fishing well below the allotment on their permit. For example, a fisherman in Massachusetts may have a permit which allows him to fish 800 traps and with the proposals, fish 10 pot trawls. 800 traps divided by 10 pots/trawl = 80 trawls with 2 vertical lines each = 160 vertical lines. Now a smaller vessel that can only handle 5 pot trawls is likely not capable of fishing his 800 trap allocation actively but is legally entitled to do so. 800 traps divided by 5 pots/trawl = 160 trawls or 320 vertical lines. You can reduce the number of vertical lines by allowing that fishermen the option of either trawling up to 10 pots/trawl or fishing 400 traps in 5 pot trawls, so that in the end, however the configuration of trawls, there is the same vertical line allocation per region according to the numbers drafted in ALWTRP-DEIS Exhibit 3-1 (3-3).

The ultimate goal is less vertical lines in the water and giving a vertical line allocation will offer each fisherman flexibility according to his own situation while not incurring the industry estimated costs as outlined in ALWTRP-DEIS. The capabilities of a vessel, a captain and his gear are not universal and an allotment would allow him to make the decision to fish longer trawls or less gear, whichever configuration allows him the safest and most economical situation for his needs. Since certain fishermen are permitted for multiple areas with multiple regulatory proposals, there would have to be

some further consultation **from fishermen** to see what is fair and realistic for their full allotment of vertical lines fished over the multiple areas. These suggestions are also much more enforceable in that surface counting buoys/vertical lines is much easier than hauling a whole string of gear to count traps/trawl.

The other major consideration in lobstering is seasonal changes. As peak season approaches for lobstering, fishermen are setting their gear in deeper water and they are also trawling up on their own. Gear fished closer to shore in summer months may be configured in 10 pot trawls whereas that same gear will be made into 20-pot trawls as the fall and winter months approach to follow the catch. Fishermen already reduce the amount of vertical lines in the water, some up to half, as a necessity of the fishery. There can be flexibility in gear reconfiguration which will not cost the lobster industry millions of dollars, will not jeopardize the safety of those at sea and will provide the same end result: fewer vertical lines in the water column.

Closures

Alternatives 3-6 include closures, some of which are on lucrative fishing grounds during the peak lobstering season. The closures specified for Alternative 5 (ALWTRP's preference) include Jordan Basin (November – January; 725 sq. mi), Jeffreys Ledge (October – January; 607 sq. mi), and Massachusetts Restricted Area #1 (January – April; 2,464 sq. mi). According to ALWTRP-DEIS Exhibit 8-3 (8-8), the closures alone will affect 184 active fishing vessels, with an annual estimated compliance cost of $1,397,000 - $2,215,000. This is the result of either complete loss in revenue or cost to relocate in an effort to fish elsewhere, if it's even feasible or profitable for the permit holder. The problem is this number is severely underestimated. Even by ALWTRP-DEIS Exhibit 7B-1 (7B-1), the projected loss in landings for Alternative 5 is 601,000 – 1,893,000 lbs/yr and with a modest price of $3.00/lb, that would make the upper bound scenario closer to $5,679,000. Alternative 5 is the preferred proposal because it has the highest reduction in co-occurrence between whales and vertical lines at a 40-42% reduction depending on the degree to which a fisherman suspends fishing or relocates his gear. With further examination from Exhibit 8-5 (ALWTRP-DEIS 8-14) these three major closures only compromise 2.8-4.8% of that reduction whereas the major component to this reduction is 37% from gear reconfiguration. It appears careless to close a combined area of 3,796 sq. miles, costing the industry millions in lost revenue for only, at most, a 4.8% co-occurrence reduction for potential whale entanglements.

ALWTRP-DEIS acknowledges in Section 11 that "the most critical impact is associated with the closure of Jeffreys Ledge from October through January… this measure would displace 69 vessels operating in the Federal waters of the Maine Zone G. The annual cost of complying with this closure, coupled with the cost of complying with other new regulatory requirements, is estimated to range from 40 to 66 percent of the average annual gross revenue of the affected vessels." (ALWTRP-DEIS 11-18) Now in Section 6, it states that the prediction of 69 active vessels is based on incomplete data. ALWTRP-DEIS wrongly assumes this would only affect 1-3 vessels from Massachusetts and 2-4 vessels from New Hampshire (ALWTRP-DEIS 6-43). I have been informed that at least 9 boats from Rockport, MA currently use these fishing grounds during this time and many more permit holders on Cape Ann either fish there or have the option to do so. Speaking with another fisherman, he indicated there are at least 7 boats from New Hampshire that he personally knows who fish there as well. ALWTRP-DEIS Exhibit 8-5 indicates the Jeffreys Ledge closure alone only gives a 1.3-2.5% co-occurrence reduction, costing the fleet $743,000-$1,172,000. Understanding that the vessels affected are more than predicted means this cost is severely underestimated and creates a much larger cost per unit of co-occurrence reduction than cited.

As so many lobstermen depend on these closed areas during their peak season, the majority of lobstermen will not suspend fishing during these times. Revenue generated from these areas is the income that will sustain them through the slow months until summer arrives. Relocation is their only option. Section 6.3.1 (ALWTRP-DEIS 6-23) discusses the uncertainty in evaluating relocation vs. suspension of fishing, citing past closures and their results for various fisheries in Exhibit 6-10 (ALWTRP-DEIS 6-24). From experience and from the citations, what will happen is lobstermen will fish as close to the edges of the closures in an effort to still make a living from whatever lucrative fishing grounds remain available during peak season. Yes, this will cause congestion and gear conflict which fishermen will work to figure out amongst themselves but what ALWTRP-DEIS has failed to identify through all their scientific findings, is the projected co-occurrence model of the closure perimeters, now congested with a wall of vertical lines, surrounding these areas where they seem to think there are so many whale sightings during these designated times. This scenario will create an enclosure surrounded by vertical lines, greatly **increasing** the chance of entanglement for whales traveling into and out of these areas.

Having spoken with naturalists from whale watch organizations or their affiliated non-profits, there is agreement in that this scenario has a high potential for entanglement upon entering or exiting these closures. Besides the fact that this is in direct conflict with ALWTRP's intended mission, the statistics of increased entanglements from enacting closures will not be correlated until years after the fact. Before any further action is taken against fishermen in an effort to reduce large whale entanglements, fishermen have asked for statistical significance, a five year period by which to assess the major April 2009 implementation forcing fishermen to change their floating groudline to sinking groundline. This has yet to be done. Even the stock assessments for each of the 3 species of concern (published for December 2012 on NOAA's website) only have recorded entanglements through 2010, not nearly enough data to properly assess ongoing issues. The problem with enacting this aggressive Alternative 5 is that there is little to no follow up on the repercussions of drastic actions and no budget or desire to reform them, in which this case, has the potential to be self-inflicted higher PBRs for these whales. And after the fact, if PBRs are not met according to ALWTRT's guidelines, will they investigate their own take reduction plan proposals or simply broaden or increase the timeframe for closures?

Criticism

There is a severe lack of statistical conclusion in the vertical line model. This can be best summed up by Reviewer 1 from the Center for Independent Experts Peer Review, stating, "It is my opinion that other model approaches might have been preferable and that this version of model is not ready to be used in a management application until its performance has been validated or compared with other approaches." (http://www.nero.noaa.gov/protected/whaletrp/eis2013/reviewer_1_redacted.pdf p.2) The model he/she is referring to is the Vertical Line Model, independently created by Industrial Economics (IEc), as contracted by NMFS. This model was used by ALWTRT in order to identify Alternative 5 as having the highest percent reduction in co-occurrence for vertical line/whale entanglement potential. This co-occurrence model is based on an overlap of whale sightings and presumed fishing activity in not only the proposed closed areas but those areas affected by minimum trawl lengths, summing their 42% co-occurrence reduction for Alternative 5. Within IEc's documented model, it even outright states, "The dataset, however, is neither geographically nor temporally comprehensive, adding uncertainty to the analysis of both baseline co-occurrence scores and the impact of alternative management measures." (Technical Documentation for the Vertical Line Model, IEc, p. 3) If the foundation, as independently reviewed and contracted, is deemed flawed, then so are the findings upon which it resides. The lengthy ALWTRP-DEIS report and the extrapolated data from IEc cannot possibly identify Alternative 5 as the best alternative when factoring in actual science, true observations and precise fishery practice.

The main purpose for these proposed regulations is to preserve whale populations for their own sake but also for future generations. I was disgusted to see the ALWTRP-DEIS document put such emphasis on enhancing the whale watch businesses of New England as if fishermen or their gear had that great of an impact on these businesses. ALWTRP-DEIS' conclusion is that the public is more likely to purchase a whale watch ticket if there are numerous whales in the area. This is a sore justification and completely irrelevant to an environmental impact statement of this nature. From my personal experience in both taking reservations and working on a whale watch boat this past summer, I can attest that the majority of customers went on a whale watch because they had purchased a coupon to do so. Those who inquired about the sightings and were informed there were fewer sightings than years past still booked. And the customers on board were just as happy and just as likely to come back with the close to boat and surface activity they had from one or two whales versus thirty. The reason why there were so few whales this past summer was from lack of feed –not whale entanglements. It was sickening to read how one seasonal industry which preys off tourists is more important than the most sustainable fishery left, lobstering. So many coastal communities depend on lobsters in terms of its own tourism draw, product for local restaurants, and secondary effects for dealers, processors, and employees thereof, not to forget the direct effect on boat owners, their crew and their families.

Throughout various sections, it is also speculated that with lower landings, less consumer surplus will lead to a greater boat price for fishermen to help offset the cost or loss in revenue from these proposed regulations. Speaking from industry standards and business practices involved in this trade, I can assure you this will not be the case. The US imports Canadian lobsters with no import/export quota restriction, meaning, when these proposed closures result in lower landings from Maine, New Hampshire and Massachusetts, the US businesses depending on this product will increase their imports from Canada before an increase in boat price will trickle down through dealers to harvesters. This may result in a higher Canadian price first, possibly a higher US price later but nothing that will substitute the projected 40-66% loss in average annual gross revenue as stated above. This is especially concerning where another country stands to profit from US fishery regulations and also lacks the same standard of compliance to prevent whale entanglements. Note the incident on 03/25/2006 where a humpback whale was found entangled off Flagler Beach, FL with clearly marked Canadian lobster pot gear (Humpback Whale Stock Assessment Report December 2012 http://www.nmfs.noaa.gov/pr/pdfs/sars/ao2012whhb-gme.pdf p.25). US closures, increased US regulations, and decreased profitability for the US lobster industry will not affect incidents like these.

Conclusion

ALWTRP-DEIS includes a Regulatory Impact Review, citing Executive Order 12866: "In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating… Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environment, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach." (ALWTRP-DEIS 10-1) After reviewing the extrapolated data, research from whence it came, and the bare assumptions filling the gaps from improper consultation from fishermen, I can say with confidence that Alternative 5 neither maximizes the benefits, encourages safe fishing practices, takes into account subsequent environmental impacts or fully comprehends the magnitude of social welfare to boat owners, crew or the local counties which will depend on this harvesting revenue. Alternative 5, the preferred alternative is aggressive and irresponsible, especially given the insistent timeline without proper assessment. ALWTRT needs to take time to collect relevant, real, substantial data, reaching out to fishermen to help assess an accurate

vertical line co-occurrence model and take into account a balanced scenario which will truly benefit the whales from entanglement.

I am in favor of gear marking to better assess problem areas. I am in favor of reducing the amount of vertical lines in the water by consulting with fisherman to give a maximum allotment of vertical lines per their permitted region. I am against the closures included in Alternative 5, especially those on Jeffreys Ledge, which will result in not only the increased likelihood of whale entanglements but also cause economic hardship to boat owners and the businesses they support. I would ask that ALWTRT and all involved agencies take time to reconsider these measures before they waste tax payer dollars and cost the US lobster industry millions of dollars by racing to meet a 2014 implementation deadline. I am asking NOAA and NMFS to restore some confidence within the fishing community by taking this opportunity to act responsibly on behalf of the whales they are trying to protect and the fishermen they also have a duty to represent. I thank you for your time in addressing these comments and fully investigating any and all discrepancies within the ALWTRP-DEIS in order to come up with the best possible solution for all interested parties.

Sincerely,

Maren M. Olson

Commercial lobsterman from Gloucester, MA
Board of Directors, Whale Center of New England
olson_maren@yahoo.com

New England Aquarium
Protecting the blue planet

Central Wharf, Boston MA 02110

www.neaq.org 617-973-5200

September 16, 2013

Ms. Mary Colligan
Assistant Regional Administrator for Protected Resources
National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 01930

Re: Atlantic Large Whale Plan Proposed Rule for Vertical Line Strategy

Dear Mary:

We are writing to provide comments on 50 CFR Part 229: Proposed Rule related to the Vertical Line Strategy. The New England Aquarium in general supports implementation of this Proposed Rule, Preferred Alternative 5 as it is likely to reduce the total number of entanglements. However, we do have concerns about the following which are detailed further below:

- The use of closures to reduce vertical lines
- The use of trawling up as a measure to reduce vertical lines
- Gear marking
- Gillnets and Jeffreys Ledge closed area
- The co-occurrence model validity
- Monitoring strategy

The use of closures to reduce vertical lines

The New England Aquarium has been monitoring entanglement scarring and injury rates on data and photographs of right whales collected since 1980. These data have shown no decline in annual scarring rates over a 30 year period and have shown a disturbing increase in serious entanglements resulting in animals with gear attached or with deep wounds from the

entanglement (Knowlton et al. 2012a). Over 82% of the known population has shown evidence of entanglement interaction. What is notable about these data is that very little is known about where these entanglements have occurred. Only a handful of cases have been able to be traced back to the location of where the gear was set and in some of these cases, the whale acquired the gear during a season or location that was outside of the right whales understood migratory patterns. Right whale #3346 (Kingfisher) is an example of such a case in that he acquired the gear in state waters of southern Maine sometime between late January and mid March 2004. Therefore, the closures proposed in Alternative 5 may provide some reduction in entanglement rates but will likely not allow NMFS and the Atlantic Large Whale Take Reduction Team to achieve the reduction in entanglements needed to reach PBR (see comments on model validity below). While we support their implementation as a first step in mitigating entanglements, we believe it should be seen as only one minor step forward in addressing this chronic issue. Also, regarding the timing of the Jeffreys Ledge closed area, see section on Gillnets and Jeffreys Ledge closed area below.

Creating or expanding closed areas to fishing where there is high overlap of whales and gear intuitively should reduce entanglement risk, and probably does. But the ultimate objective is not to simply reduce risk of mortality and serious injury but to help the population of endangered right and humpback whales *recover*. We request that NMFS use an appropriate and peer-reviewed population model to quantify the impact on the populations that the suite of areas planned for closure might have. This is a critical need, as other case studies involving marine have shown that local reductions in bycatch do not necessarily translate to population recovery unless the protected areas are in the correct location and are of sufficient size (Rojas-Bracho and Reeves 2013, Slooten 2013). This kind of modeling exercise should be carried out to evaluate the potential impact of these proposed measures on target populations.

One consequence of time-area closures is that fishing may become intensified and concentrated in areas outside ones that are closed. Although in NMFS' co-occurrence model such areas were not identified as areas with high concentrations of right whales, an increase in effort within them might result in an increase in the entanglements that ordinarily would have occurred in these areas, at a scale that could reduce the effectiveness of the closed areas. One way to mitigate this is to continue the research and development of alternative fishing gear and techniques that can be shown to reduce entanglement risk to whales. As large whale distributions begin to shift as a result of climate change (as has already been detected), the importance of developing alternative fishing gear and techniques will become even more critical.

<u>The use of trawling up as a measure to reduce vertical lines</u>

Increasing the number of traps/trawl is proposed to reduce the number of vertical lines in the water column. Intuitively this should reduce entanglement probability but there is a possibility that it is trading off one source of risk (high gear density) with others that may increase the chances of severe injury or mortality occurring. For example, increasing the number of

traps/trawl will increase the overall trawl weight. In the event of an entanglement, would the additional weight create more drag thereby increasing injury severity? Would the increased weight of gear result in fishermen choosing ropes with heavier breaking strength? This would be a serious concern in light of one study (Knowlton et al. 2012b) that showed rope breaking strength is a factor affecting the likelihood that a large whale can break free of gear upon entanglement. In this study, several indicators suggested that rope strength in some cases is too strong for large whales to break free from entangling gear before it develops into a complex, serious entanglement. We showed that minke whales have been found in significantly lower breaking strength ropes than right and humpback whales, juveniles right whales are found in significantly lower breaking strength ropes than adult right whales, and adult humpback whales are found in significantly lower breaking strength ropes than adult right whales. All of these findings indicate that whale size and strength play a role in what ropes a large whale can break free from without causing harm.

A second aspect of this study was an exploration of rope manufacturing changes which showed the development of a co-polymer rope in the mid 1990's which led to much stronger ropes of the same diameter. When we evaluated entanglement complexity and injury severity over a 30 year period, the data showed that beginning in the mid 1990's both complexity and injury severity increased significantly. This change could be related to this rope manufacturing development which has resulted in a combination of fishermen using stronger ropes and the co-incidental expansion of several fisheries effort into offshore areas.

As a result of this study, we recommend that NMFS require the fishing industry to use ropes with breaking strengths of less than 1,500 lbs in areas north of Cape Hatteras and ropes of less than 1,000 lb breaking strength in areas south of Cape Hatteras, in consideration of newborn calves that would not have the strength to break free from the stronger rope, where operationally feasible. Our data suggest that large whales should gain substantial benefits from these maximum breaking strengths and that in most cases, the gear should be able to be hauled and set without negative impacts to the fishermen's activities. When a whale gets entangled in the vertical line and starts to tow the gear, this would put a strain on the rope that would exceed the typical loads imposed by hauling and setting the gear. If when such a strain is imposed on the towed gear, if the vertical line breaks more quickly than it presently would, the whale would be able to ideally swim away without becoming further entangled or carrying attached heavy gear. There may also be some unanticipated benefits to the fishing industry including improvement of safety at sea as a hang up would part off before putting a vessel in danger, a potential reduction in bottom gear loss as a whale (or a dragger) might not end up towing gear very far from its origin as the vertical line would break free before the full weight of the bottom gear got under tow and the bottom gear would be able to be grappled or retrieved from the other endline, and lastly, if reduced breaking strength ropes are developed that are of the same diameter as previously used ropes, they would likely be lighter weight and therefore lesser cost. We strongly encourage NMFS to support research and development of reduced breaking strength ropes.

There will likely be fishing areas that because of water depth and currents, reduced breaking strength ropes would not be able to be used. In these areas, we believe the only alternative should be rope-less fishing. Therefore, we believe the research and development of rope-less fishing techniques is paramount to achieving the goal of making fisheries safe for large whales.

Gear marking

The importance of improved gear marking has been discussed for many years, and it will be useful to have a better system in place. Give that it is not uncommon to observe whales carrying ropes without buoys that would identify their owner, it is regrettable that there will still be instances in which the gear will be untraceable to a more accurate location where it was set, which would assist in a reconsideration of the effectiveness of regulatory measures, particularly the placement of area closures. One option which we think should be considered would be to modify the gear marking scheme slightly to help understand what gear configurations (and therefore a slightly more refined area) are leading to complex entanglements. Because the majority of lobster gear is found in the Gulf of Maine, we would suggest that the red gear marking of a 12 inch band at 3 points along the vertical line be changed slightly. For trawls with 5 pots or fewer, retain the 12 inch band of solid red. For trawls with more than 5 pots attached, make each gear mark be two bands of red separated by two inches without color for a total of 12 inches (this would result in two 5 inch bands of red). Some fishermen may shift the number of pots attached to their gear during different seasons from 5 or less to more than 5 pots. This slight change in gear marking would allow a fisherman to slightly change the marking with any change of gear configuration. With this slight change in gear marking, there may be an opportunity to better understand whether heavier gear and longer trawls are leading to more complex entanglements as we suspect.

We are not advocating any change in gear marking in the other areas as at this point as our understanding is that there is not as much diversity in gear configurations in these other regions. However, if it appears that a similar gear marking scheme in other regions would help better our understanding of the gear configurations involved in complex entanglements of all large whale species, then we suggest it be considered as an option.

Gillnets and Jeffreys Ledge closed area

We are concerned that gillnets have not been considered for closed areas. We know of at least two right whales that were entangled in gillnet gear in the Jeffreys Ledge area - #3120 was seen entangled in gillnet on October 20, 2010 and #4090 was seen entangled in gillnet on September 18, 2011. Although #3120 has been resighted, he suffered severe injuries of his flipper which may affect his long term prognosis. And #4090 has not been resighted again and may have died from the entanglement. Based on these two events and the known overlap between right whales and gillnets in this area, we recommend that NMFS include gillnets in the Jeffreys Ledge closed area. Also, we recommend that the timing for the Jeffreys Ledge closed area be extended back to

include the month of September as in addition to the above September sighting, there are two other right whale entanglements seen on Jeffreys Ledge in September - #1503, seen entangled in rope on September 10, 2010 and not seen again, and #1151, seen entangled and anchored in rope near Jeffreys Ledge on September 4, 2009 and disentangled by PCCS. All of these known entanglement cases suggest that Jeffreys Ledge is a hotspot for entanglement in both gear types from September onward through the fall.

The Co-occurrence Model Efficacy

An alternative model for right whales using detailed trap gear characteristics, fishing effort, water depth, and an updated right whale distribution model that included systematic and opportunistic sightings, was presented to NMFS in the early summer of 2012 by Hauke Kite-Powell, Brooke Wikgren, Patrice McCarron, and Scott Kraus. At NMFS request, supplementary details on the model's consequences for humpback whales in the Gulf of Maine were provided. An analysis using this alternative model indicated that hypothetical entanglement reductions based on the co-occurrence model over-estimated actual entanglement risk reductions of the proposed rule by over 50% or more. This is a serious difference, and regulatory actions under the ESA and the MMPA should be based upon the best available data and analyses. There is reasonable doubt that the NMFS co-occurrence model represent either the best data (it ignores opportunistic sightings and tagged whale data), or the best analyses (co-occurrence is a proxy for risk only if all other factors are equal, and the variability in the fishery and Gulf of Maine environment are anything but homogeneous).

Further, the CIE reviews of NMFS co-occurrence model identified several significant problems with it, and were not as positive as the Federal Register announcement makes it sound. Comments in the Federal Register announcement suggest that NMFS was unaware of the alternative model, which is untrue. While the co-occurrence model has prompted proposed changes that are likely to reduce entanglements, the level of that reduction is unlikely to be as large as hypothesized. Given that, this rule is unlikely to significantly reduce the threats to right whale recovery.

Monitoring strategy

One aspect of the entanglement issue that remains unclear are intended plans for monitoring the impacts of these regulatory changes. Although entanglements where gear remains attached to the animal are one metric that has been used, several other metrics for monitoring entanglement impacts are available. Scar coding work has been useful for understanding the annual rate and characteristics of right and humpback whale entanglement events (Knowlton et al 2012a; Robbins 2012). We have three recommendations: 1) This baseline scar analysis work should continue to determine if the annual rate of entanglement scarring increases or decreases and whether the reduction of vertical lines (and of sinking groundline) has reduced the rate of interaction; 2) All right whale entanglement scarring should be categorized into minor, moderate,

or severe entanglement scars to monitor trends in entanglement severity. As noted above, we have seen a significant increase in moderate and severe entanglement scarring since the mid 1990's (Knowlton et al 2012b). This annual proportion of scarring severity will be useful for understanding whether the increase in trawl size, which may result in greater injury, is reflected in the scarring data. Even if overall entanglements are reduced because of fewer vertical lines in the water column, if more of the events result in continued lethal or sub-lethal injuries, this would not be considered an improvement; 3) NMFS should produce an annual map that shows the date and location of origin (or at least region) of all fishing gear retrieved from whales during dis-entanglement efforts. Careful monitoring of all of these data should be carried out expeditiously by NMFS and other research groups involved in these efforts with support from NMFS.

Our final concern is regarding the lack of a strategy if entanglement levels continue to exceed PBR (as has been the case since implementation of the sinking groundline strategy in 2009). Without a clear plan in place such as expanded emergency closures or mandatory fishing gear changes, large whales could continue to experience higher levels of entanglement than legally allowed without any recourse to stop this from happening. This is a situation these species should not continue to endure.

We hope the above comments will be useful as you proceed with this and future rulemaking efforts. Please don't hesitate to let me know if you have any questions.

Sincerely,

Amy R. Knowlton, Research Scientist

Timothy Werner, Senior Scientist

Scott Kraus, Vice President of Research

References

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Robbins, J. 2012. Scar-based inference into Gulf of Maine humpback whale entanglement: 2010. Report to the National Marine Fisheries Service. Order number EA133F09CN0253.

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State of Rhode Island comments to the August 15, 2013 NOAA Fisheries ALWTRT Vertical Line Rule Public Hearing

The State of Rhode Island Department of Environmental Management, Marine Fisheries Section is submitting a formal written comment to the August 15, 2013 NOAA Fisheries ALWTRT Vertical Line Rule Public Hearing held at the University of Rhode Island, Graduate School of Oceanography, Coastal Institute.

1. NMFS Northeast Proposed Management Measures for ASMFC Lobster Conservation Management Area

- Prohibition of Single Pots in Rhode Island State waters (0-3 miles). The State of Rhode Island has substantial seasonal lobster and fish pot fisheries which take place during late spring and summer months in the inshore State waters zone from 0-3 miles. These fisheries are prosecuted by small vessels, usually single handed. The NMFS proposal would institute the prohibition of single pots and require trawls to have three pots per trawl and one vertical line. Three pot trawls are not an option for these small boat fisheries and pose a significant safety concern. Single pot fisheries usually deploy pots before another one is hauled. There can be little room for additional pots and ground line during the fishing operations given the limited size of the vessels. This measure would be unlikely to have an impact on large whale entanglements as this area has a low co-occurrence score based on 2009/2010 Northeast Baseline co-occurrence analysis. There are also no known serious injury or mortality events to marine mammals in Rhode Island State waters attributed to single pot fisheries. The State of Rhode Island is seeking an exemption to the prohibition of single pots in State waters (0-3) nautical miles.
- The Rhode Island fixed gear fishing fleet is diverse with multiple vessel and operation sizes. The fleet is comprised of vessels from wood bottom skiffs measuring 18 feet in length to greater than 50 foot inshore/mid shelf vessels. There are a number of mid range vessels that have tailored their operations based on the vessel's capability to haul and transport gear to and from their fishing grounds which can be from the immediate shore to offshore fishing grounds. The NMFS Northeast proposal for LCMA 2 (12+) would require a minimum of 20 twenty-pot trawls. There are small vessels that fish this distance from shore but can not accommodate large trawls due to space and safety concerns.
- The State of Rhode Island has concerns with the gear complexity issue of trawling up. The fact that trawls will become heavier and thereby difficult for large whales to shed if an entanglement occurs, is a serious concern that may undermine the reduction in vertical line strategy. The impacts of this concern were not adequately addressed in the NMFS proposal.

The problems stated above would create few options for industry to safely meet the objectives of the Large Whale Plan as proposed by the NMFS in the Northeast Proposal.

State of Rhode Island Proposal for Vertical Line Reduction in Fixed Gear Fisheries.

The State of Rhode Island offers the following measures for consideration to mitigate the risk of mortality or serious injury to large whales from vertical lines.

- Under the NMFS Northeast Proposed Management Measures, a change to the current exempted waters from Narragansett Bay and the South Shore Coastal Ponds to include all Rhode Island State waters which would allow for seasonal single pot fisheries
- Under the NMFS Northeast Proposed Management Measures, decrease the minimum number of traps / trawl from 20 to 15 in LMA2 (12+).
- In addition to the above requests, the RIDEM asks that NMFS anticipate the implementation of the Atlantic States Marine Fisheries Commission Addendum XVIII to the Interstate Management Plan for Lobster which reduces the number of traps in LCMA 2 to greater than 50% in the six years through active and passive reductions in traps. It is realized that a 50 % reduction in the

number of traps fished may not equate to a similar reduction in vertical lines, however, considering that the NOAA Vertical Line Reduction Plan does not have a defined target vertical line reduction needed to be achieved, it is anticipated that the goal of the NMFS Northeast Proposed Management Measures will be met by the Area 2 LCMA Effort and Trap Reduction Plan. If the NMFS agrees to accommodate this request, the RIDEM will produce an analysis that will seek to quantify the potential reduction in vertical lines from the effort control plan currently being implemented for the lobster fishery in RI. The NMFS can then use this analysis to measure against the vertical line reduction plan to determine whether it believes it meets the goals of the plan.

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303

ER 13/0488
9043.1

March 21, 2014

Kate Swails
55 Great Republic Drive
Gloucester, MA 01930-2276

Re: Comments on the Draft Environmental Impact Statement (DEIS) Amending the Atlantic Large Whale Take Reduction Plan, Vertical Line Rule

Dear Ms. Swails:

The Department of the Interior (Department) has reviewed the DEIS Amending the Atlantic Large Whale Take Reduction Plan, Vertical Line Rule. We have no comments at this time. I can be reached on (404) 331-4524 or via email at joyce_stanley@ios.doi.gov.

Sincerely,

Joyce Stanley, MPA
Regional Environmental Protection Specialist

cc: Jerry Ziewitz – FWS
Gary Lecain - USGS
Anita Barnett – NPS
Chester McGhee – BIA
Tommy Broussard – BOEM
OEPC – WASH

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-neqo
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0038
Comment from Pat Carlisle

Submitter Information

Name: Pat Carlisle
Address:
990 W. Ocean View Ave.
Norfolk, VA, 23503-1910
Email: yoyogimah@yahoo.com

General Comment

I vehemently support this proposed rule to reduce whale entanglements! Thanks for your immediate attention to this matter.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-j13l
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0037
Comment from Katherine Conrad

Submitter Information

Name: Katherine Conrad
Address: United States,

General Comment

Dear Sirs,
I urge you to please take the appropriate steps to help reduce entanglements of right and humpback whales!

As a whale lover, whale watcher, human being that shares this earth with majestic creatures of all kinds, I beg you to please
help protect the oceanic life and restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

Specifically, I prefer Alternative #5 - the preferred proposed plan to reduce fatal entanglements. I beg you to ensure that the waters of Maine and New Hampshire are included in the regulations and policy. Please include gillnets in entanglement reduction strategies and increase management efforts in the mid-Atlantic region. This is crucial. We must act now to save whales and help the environment

As your own research shows, the injuries and fatalities for whale types are nearly double or more what is sustainable and we can clearly see from your research that we must act now.

Thank you for your help and consideration on this crucial cause!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-9nlu
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0036
Comment from Elizabeth Claman

Submitter Information

Name: Elizabeth Claman
Address: United States,

General Comment

Accidental killing of whales has become a greater and greater problem. NOAA's whale protection management throughout the mid-Atlantic region is essential, especially the waters off Maine and New Hampshire. I ask that NOAA do all that is possible to protect all large whales by reducing (or better yet, eliminating) fatal gillnet entanglements. Alternative 5 will achieve this goal for both right whales and also humpback whales. In addition there need to be clear restrictions on the use of risk-prone lines that go from the lobster and crab pots to the surface buoys, as well as other hazardous gear types.

I look forward to hearing that NOAA is making verifiable progress in its efforts to protect all whales.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-q2mf
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0034
Comment from C Tracy

Submitter Information

Name: C Tracy
Address: United States,

General Comment

Hello,

You have already received tens of thousands of signatures on petitions to call for making the Ship Strike Rule permanent. Please join people all over the U.S. in supporting the visionary decision to help reduce entanglements of right and even humpback whales. You are in a unique position to protect large whales.

Thank you so much for proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys! Please include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

Thank you for what you are doing for the country!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-w218
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0033
Comment from valerie gilbert

Submitter Information

Name: valerie gilbert
Address: United States,

General Comment

Please help reduce entanglements of right whales! This regulation will also benefit humpback whales. We need you to protect large whales!

NOAA is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-17pg
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0032
Comment from Liz Garratt

Submitter Information

Name: Liz Garratt
Address: United States,

General Comment

As someone who cares about wildlife, reducing vertical line in the water to reduce entanglements of whales is important to me. Because of this, I support Alternative #5, the preferred proposed plan to reduce fatal entanglements. I also want the waters of Maine and New Hampshire to be included in the regulations and policy. I also want gillnets to be included in entanglement reduction strategies. I think management efforts should be improved in the mid-Atlantic region.The NOAA's own research shows that the number of serious injuries/mortalities for right whales is nearly double the sustainable limits and is more than double the sustainable limits for humpback whales. That's why I support Alternative 5.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-b6ze
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0031
Comment from Karin Winegar

Submitter Information

Name: Karin Winegar
Address:
1832 Carroll Ave
St. Paul, MN, 55104
Email: horseklw@aol.com
Phone: (651) 303-9887

General Comment

I am a sailor and a journalist who has written about sailing in Maine and elsewhere.

Given their small numbers and ongoing injuries, mortalities and imperiled habitat, I see no need to "take" kill any whales of any species any longer whether right whales, humpbacks or other species. We no longer need whalebone for corsets or whale oil for lamps: we need to protect the integrity of the marine ecosystem by allowing whales to repopulate.

Therefore I support Alternative 5, and I want Maine and New Hampshire waters included and gillnets included.
NOA'S own research shows intolerable levels of injuries and mortalities for right and humpback whales.

It's time to protect them and do so aggressively.

Thank you.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-r6z0
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0029
Comment from Lynette Ridder

Submitter Information

Name: Lynette Ridder
Address: United States,

General Comment

As someone who is concerned about animals and the environment, I and many others would like to see a reduction in whale entanglements. Please support 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements. Ensure that the waters of Maine and New Hampshire are included in the regulations and policy, including gillnets in entanglement reduction strategies and increasing the management efforts in the mid-Atlantic region. Thank you!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-ozgt
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0023
Comment from Stephan Donovan

Submitter Information

Name: Stephan Donovan
Address:
4851 North Bernard Street
Chicago, IL, 60625-5107
Email: StephanDonovan@aol.com

General Comment

Duplicate Comment submitted by multiple people

I want to REDUCE whale entanglements by:
1. Supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements
2. Ensuring that the waters of Maine and New Hampshire are included in the regulations and policy
3. Including gillnets in entanglement reduction strategies
4. Increasing the management efforts in the mid-Atlantic region

Phase 2 of ACT RIGHT NOW focuses on entanglements.

Please help reduce entanglements of right whales. This regulation will also benefit humpback whales as well! We need the regulations m to protect large whales! NOAA is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-4pjf
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0022
Comment from Paul Lerman

Submitter Information

Name: Paul Lerman
Address:
908 Laburnum Lane

General Comment

As a lifelong lover of whales and dolphins I urge you to stop using vertical lines that entangle them.

Your research shows that the number of injuries and fatalities is nearly double sustainable levels. We cannot lose these beautiful animals.

I support alternative 5 and want Maine and New Hampshire waters to be included and gillinets to be included. It is imperative that laws include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

Thank you for your help.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-qn31
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0021
Comment from ron silver

Submitter Information

Name: ron silver
Address: United States,

General Comment

We want to REDUCE whale entanglements by:

Supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements
Ensuring that the waters of Maine and New Hampshire are included in the regulations and policy
Including gillnets in entanglement reduction strategies
Increasing the management efforts in the mid-Atlantic region

Phase 2 of ACT RIGHT NOW focuses on entanglements.

Please help reduce entanglements of right whales. This regulation will also benefit humpback whales as well! We need to protect large whales! NOAA is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-hkw2
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0020
Comment from Debbie Brush

Submitter Information

Name: Debbie Brush
Address: United States,

General Comment

Please supporte 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements. Please also ensure that the waters of Maine and New Hampshire are included in the regulations and policy. Please include gillnets in entanglement reduction strategies and please also increase the management efforts in the mid-Atlantic region.

Thank you!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-ns5y
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0019
Comment from Gloria Picchetti

Submitter Information

Name: Gloria Picchetti
Address: United States,

General Comment

Please help reduce entanglements of right whales. This regulation will also benefit humpback whales as well! Join us in letting NOAA know that we need them to protect large whales! NOAA is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-h2o6
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0018
Comment from Nicole Weber

Submitter Information

Name: Nicole Weber
Address: United States,

General Comment

Please support "Alternative #5."

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-h4g8
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0017
Comment from LuAnne Parrish

Submitter Information

Name: LuAnne Parrish
Address:
906 East Shiloh Road
Corinth, MS, 38834
Email: lapqlom@hotmail.com
Phone: 662-287-1159

General Comment

Please help reduce entanglements of right whales. This regulation will also benefit humpback whales as well!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-cb5h
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0063
Comment from marisol montoya

Submitter Information

Name: marisol montoya
Address: United States,

General Comment

Please protect large whales. In a real effort to reduce whale entanglements, I fully support Alternative 5 and also hope that the waters of Maine and New Hampshire be included in the regulations and policy. Also, including gillnets in the entanglement reduction strategies as well as increasing management efforts in the mid-Atlantic Region. Thanks so much for your consideration.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-n3px
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0061
Comment from Lars Jefferson

Submitter Information

Name: Lars Jefferson
Address:
3320 Jackson Street SE
Apt. G
Albany, 97322
Email: larsjefferson78@mac.com
Phone: 5414971877
Organization: Whale and Dolphin Conservation

General Comment

I am writing on behalf of whales. I support "Alternative #5" to reduce or eliminate fatal whale entanglements. This regulation policy must include Maine and New Hampshire, no exceptions. Furthermore, gill nets should be included to avoid whale entanglements. Finally, I support increased efforts in the mid Atlantic region.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-xng2
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0059
Comment from Mark Gowan

Submitter Information

Name: Mark Gowan
Address: United States,

General Comment

Please support 'Alternative #5' - the preferred proposed plan to reduce fatal whale entanglements.
Ensure that the waters of Maine and New Hampshire are included in the regulations and policy.
Include gillnets in entanglement reduction strategies.
Increase the management efforts in the mid-Atlantic region

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-czm6
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0058
Comment from Elizabeth Cunningham

Submitter Information

Name: Elizabeth Cunningham
Address:
515 Woodmont Ave.
Berkeley, CA, 94708

General Comment

I support Alternative #5' - the preferred proposed plan to reduce fatal entanglements. Please ensure that the waters of Maine and New Hampshire are included in the regulations and policy, including gillnets in entanglement reduction strategies and increasing the management efforts in the mid-Atlantic region.

I greatly appreciate the work of NOAA in conservation field!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-5w8n
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0057
Comment from Doug Thompson

Submitter Information

Name: Doug Thompson
Address:
PO Box 800
Morongo Valley, CA, 92256
Email: doug@dolphinworks.com

General Comment

Whales are long lived mammals and worth more money alive then dead. Whale watching is an economic power around the world and especially the United States. Incidental deaths to marine mammals using methods including gill nets, exploration for more ocean oil, and ships strikes are not incidental;they can be avoided.

Whales and other marine mammals have enough to deal with in our modern times. Lets make sure they are protected.

Thanks for you time....Doug Thompson

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-fdiq
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0056
Comment from Barbara Matthiessen

Submitter Information

Name: Barbara Matthiessen
Address:
WA,

General Comment

I am writing in regards to whale entanglment and enourage the enactment of alternative 5. Please do not exclude Maine and New Hampshire or gill-nets.
As an ocean and whale enthusiast I am concerned about the survival of many ocean species including the right and humpback whales who's numbers are rapidly dwindling.
My hope is that whales will still exist for my grandchildren.
Thank you for your time and consideration.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-e9it
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0055
Comment from Marcia C. Hackett

Submitter Information

Name: Marcia C. Hackett

General Comment

I strongly support Alt. 5 to reduce fatal entanglements of right whales and other large marine creatures as well. NOAA needs to include more gear types to show where lines are to prevent marine entanglements.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-r7jx
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0054
Comment from Veronica Blake

Submitter Information

Name: Veronica Blake
Address: United States,

General Comment

I care about whales and have contributed financially to safeguard them. In addition, I use seafood guides that help me choose only sustainably caught fish when dining. I support Alternative 5 to reduce fatal entanglements in the waters of Maine and New Hampshire as well as all others. Gillnets should be included in this strategy. All management efforts in the mid-Atlantic need to be not only continued but increased.
Veronica Blake

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-g56t
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0051
Comment from Mark Weinberger

Submitter Information

Name: Mark Weinberger
Address: United States,

General Comment

I support 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements.

Ensuring that the waters of Maine and New Hampshire are included in the regulations and policy, including gill nets in entanglement reduction strategies, and
increasing the management efforts in the mid-Atlantic region, all will act to reduce whale entanglements.

Thank you.

Mark S. Weinberger

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-yzpg
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0049
Comment from Susan Margison

Submitter Information

Name: Susan Margison
Address:
821 Piedra Vista Road NE
Albuquerque, NM, 87123
Email: smargiso@yahoo.com
Phone: 505 856-7338
Fax: 505 275-6145

General Comment

Please adopt Alternative 5 to help reduce whale entanglements, being sure to apply it to Maine and New Hampshire waters as well. Additionally, gill nets, the source of much whale entanglement, need to be included in these plans.

I am a retired teacher, lawyer in retirement, and avid amateur whale watcher and observer. I cut my teeth on watching humpback whales off Cape Cod, Massachusetts back in the '70s, and ultimately went on to work with scientists studying short-finned pilot whales off Tenerife in the Canary Islands, orcas in the Northwest US, and South Atlantic Right whales off the coast of South Africa. I have seen the scars of entanglement for myself, as well as had a number of truly amazing experiences with these magnificent creatures while in their presence.

As I grow older (69 and continuing on...for a good long time I hope) I come to only appreciate ever so much more the wonderful diversity of life with which we're blessed on this planet. The large whales in particular capture my head and heart and I am absolutely convinced that we must do all in our power to preserve them, particularly as we ever-increasingly encroach on their environment and cause them great harm and untold risk.

Again, please adopt Alternative 5 and make it as inclusive as possible with respect to the preservation of the great whales and all sea life.

Thank you for your consideration.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-d2w2
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0044
Comment from Desiree Kisselburg

Submitter Information

Name: Desiree Kisselburg
Address:
Kerwood Ave
Los Angeles, CA,
Email: desireekisselburg@gmail.com

General Comment

Please help reduce entanglements of right whales. This regulation will also benefit humpback whales as well! Join us in letting NOAA know that we need them to protect large whales! NOAA is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-6m8d
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0041
Comment from dostana ljusic

Submitter Information

Name: dostana ljusic
Address: United States,

General Comment

Please help reduce entanglements of right whales. This regulation will also benefit humpback whales as well! Join us in letting NOAA know that we need them to protect large whales! NOAA is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ak-j8g4
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0040
Comment from Michael Goode

Submitter Information

Name: Michael Goode
Address: United States,

General Comment

I want the U.S. Government, my Government, through NOAA, to REDUCE whale and dolphin entanglements by:

Supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements
Ensuring that the waters of Maine and New Hampshire are included in the regulations and policy
Including gillnets in entanglement reduction strategies
Increasing the management efforts in the mid-Atlantic region

Supporting Phase 2 of ACT RIGHT NOW that focuses on entanglements.

Please help reduce entanglements of right whales. This regulation will also benefit humpback whales as well! We are letting you at NOAA know that we need NOAA to protect large whales! We know that you at NOAA are proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but you need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set to protect whales successfully.

I know that at least 74,000 signatures and comments were sent to you at NOAA from WDC, in support of making the Ship Strike Rule permanent, and because of this the Ship Strike rule was made permanent, BRAVO to NOAA and the people that wrote in!!! You at NOAA now need to add these additional aspects to the permanent law as outlined in this letter in order to protect whales and dolphins effectively.

We know that you at NOAA responded to our previous efforts and we look forward to NOAA keeping the momentum up and the pressure on to fully protect whales and dolphins in the ways described in this comment area. Thank you.

Michael Goode

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87an-rsn6
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0089
Comment from Patricia Parker

Submitter Information

Name: Patricia Parker
Address:
211 N 2nd Street
Lewisburg, PA, 17837
Email: pparker2112@gmail.com

General Comment

I strongly urge you to REDUCE whale entanglements by supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements; Ensuring that the waters of Maine and New Hampshire are included in the regulations and policy; Including gillnets in entanglement reduction strategies; and increasing the management efforts in the mid-Atlantic region

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87am-6n9p
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0085
Comment from Sandra Cobb

Submitter Information

Name: Sandra Cobb
Address:
3880 Ellendale road
Moreland Hills, OH, 44022
Email: smcobb@beechmere.com

General Comment

Please enact Alternative #5 to reduce fatal entanglements of right whales. The waters of Maine and New Hampshire should be included in these regulations. Include gillnets in the entanglement reduction strategies and increase management efforts in the mid-Atlantic region. This will also benefit other whales and porpoises.

Also restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

Thank you for your attentionl

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87am-mip2
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0084
Comment from JoAnn Ellis

Submitter Information

Name: JoAnn Ellis
Address:
15628 Landauer Circle
15628 Landauer Circle
Basehor, KS, 66007
Email: joannpetlover@yahoo.com
Phone: 913-634-0646

General Comment

Reduce whale entanglements by supporting # 5! Please!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87am-s8gi
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0079
Comment from Ian Weinschel

Submitter Information

Name: Ian Weinschel
Address:
630 Country RD
Berkeley Springs, WV, 25411
Email: Domeonmountain@gmail.com
Phone: 304-839-7657

General Comment

These creatures are one of the greatest marvels of our plants Oceans. We could help them or we can hurt them. Let's HELP THEM.

HAVE YOU EVER ACTUALLY SEEN, BEEN UP CLOSE TO ONE OF THESE CREATURES?
MAYBE THAT'S WHAT'S MISSING HERE. GO OUT AND SEE THEM AND THEN RECONSIDER NOT ENACTING REGULATIONS THAT WOULD STOP UNNECESSARY DEATHS.

I would like to see a REDUCTION in whale entanglements by:

Supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements

ESPECIALLY: Ensuring that the waters of Maine and New Hampshire are included in the regulations and policy

Including gill nets in entanglement reduction strategies

Increasing the management efforts in the mid-Atlantic region

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87am-jfrz
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0075
Comment from JUDITH SMITH

Submitter Information

Name: JUDITH SMITH
Address:
2712 GRANDE VISTA AVE
OAKLAND, 94601
Email: axisdance@comcast.net

General Comment

I want NOAA to REDUCE whale entanglements by supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements by:

Ensuring that the waters of Maine and New Hampshire are included in the regulations and policy
Including gillnets in entanglement reduction strategies
Increasing the management efforts in the mid-Atlantic region

Please restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys AND include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

Please help reduce entanglements of right whales. This regulation will also benefit humpback whales as well!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87am-2ery
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0073
Comment from Jeri Burgdorf

Submitter Information

Name: Jeri Burgdorf
Address: United States,

General Comment

Please protect marine mammals from damage and death from fishing operations We cannot afford their injury and death due to the greed of commercial fishing businesses or due to your lack of priority placed on these mammals.
Please reign in those fishing operations immediately!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87al-ekg6
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0071
Comment from Robert H. Feuchter

Submitter Information

Name: Robert H. Feuchter
Address:
175-20 Wexford Terrace, Apt 11H
Jamaica Estates, NY, 11432-2898
Email: roberthfeuchter@me.com

General Comment

I am a long time supporter of WDC and participate in their whale adoption program with a number of children and adults. In addition I go on whale watches regularly during the summer and fall in Provincetown. I am very concerned that regulations be put in place to protect these amazing creatures. Specifically I would like to see Alternative #5 approved and that the waters of Maine and New Hampshire be included. It is also essential that gill nets be included.
Your own research shows that unless strong action is taken that the sustainability of these and other whales is threatened. Whales and elephants are rapidly headed toward extinction. We need you to do the right thing and insure the survival of at least one of our fellow inhabits of our planet earth.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ap-4m7l
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0114
Comment from Lynn Gray

Submitter Information

Name: Lynn Gray
Address:
Durango, CO, 81301

General Comment

We need to leave the whales alone and let them proliferate.

The fishing operations need to change to sustain our oceans. The writing is on the wall,

We are destroying what we most need and that is a sustainable ocean. Please consider

New regulations against the taking of marine mammals in commercial fishing operations and a plan to
Reduce Atlantic large whale takes.

Please and thank you, and your grandchildren will thank you!

I have no progeny and I still thank you in advance,

Sincerely,

Lynn Gray

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ap-wz8d
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0113
Comment from Julie Claunch

Submitter Information

Name: Julie Claunch
Address:
4251 N. Tamera Ave.
Fresno, CA, 93722
Email: julieclaunch@att.net
Phone: 5593072457

General Comment

I had a quick day trip to San Francisco on Monday, the 26th, and as the beauty of the bay overwhelmed me, as usual, I couldn't help but to wonder if the whales would be safe. Whale watching is incredibly popular and a large tourist draw, but with the attacks on our sea life from shipping and from commercial fishermen, their numbers are dwindling, in the Pacific as well as the Atlantic. If we lose many more, we may just hit the point of no return for them. Please do stand up for these beautiful and sentient creatures, do the right thing. Support 'Alternative #5', include the waters of Maine and New Hampshire, include gill nets in entanglement reduction strategies, and increase your efforts in the mid-Atlantic area.

Thank you, God bless.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ap-t7z6
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0112
Comment from Elaine Becker

Submitter Information

Name: Elaine Becker
Address:
2514 Sharmar Rd.
Roanoke, VA, 24018
Email: elainebecker@yahoo.com
Phone: 540-400-6129

General Comment

I want to protect Right whales because we MUST save species for future generations!

We must listen to the science that tell us that lines in the water entangle whales (and other species) that cause marine mammals to drown. There should be NO exemptions from reasonable limits placed on how many lines and how close together they can be. We can't sacrafice large species to keep harvesting small ones - or soon there will be nothing left!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ap-da2i
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0111
Comment from Jennifer Oppenheim

Submitter Information

Name: Jennifer Oppenheim
Address:
Alba, TX, 75410
Email: jenn@crwww.com

General Comment

Please reduce whale entanglements by (1) supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements; (2) ensuring that the waters of Maine and New Hampshire are included in the regulations and policy; (3) including gillnets in entanglement reduction strategies; and (4) increasing the management efforts in the mid-Atlantic region.

Please help reduce entanglements of right whales and humpback whales. While NOAA is proposing to restrict the use of risk-prone lines that go from lobster and crab pots to surface buoys, please include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

Thank you for your consideration.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ap-tgg5
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0110
Comment from Laraine Bunt

Submitter Information

Name: Laraine Bunt
Address: United States,

General Comment

I urge you to change all practices that endanger Large Whale and other Marine mammals from being entangled in all types of commercial fishing practices, please ban Gill netting it is so harmful to our Marine Mammals. Sustainability of these species is of the utmost importance. It is documented by NOAA that the number of serious injuries and mortality of Southern Right Whales is nearly double sustainability limits, so then why is it that you will not ban all activities that put these Mammals at risk.

I spend many wonderful hours watching the migration along our coastline in Australia East Coast of the Humpback and Southern Right Whales as they head to warmer waters to breed and then the journey back to their home in the Antarctic. We in Australia are very conscious of the protection of these magnificent Mammals, so I am asking that you consider the importance of their existence in your waters and you will do what is the Right thing and save the species that are under threat because of the laws that you allow to be upheld.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-qy9t
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0108
Comment from Sonya Lang

Submitter Information

Name: Sonya Lang
Address: United States,

General Comment

Please save the whales. I support this rule.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-3kmb
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0107
Comment from william toner

Submitter Information

Name: william toner
Address: United States,

General Comment

NOAA must reduce whale entanglements by supporting Alternative #5- The preferred proposed plan to reduce fatal entanglements.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-hcy4
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0105
Comment from David Gustafson

Submitter Information

Name: David Gustafson
Address: United States,
Organization: relations.gov

General Comment

I support alternative #5 to keep whales and other large mammals from becoming entnagled in nets.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-tcnd
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0104
Comment from Angela Lopez

Submitter Information

Name: Angela Lopez
Address: United States,

General Comment

Please require more types of fishing gear in this plan. There are so many whales and other marine animals that are lost each year needlessly due to our fishing gear. This problem can be resolved by including more types of fishing gear in this plan and greater enforcement.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-in93
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0101
Comment from Rose Eckert

Submitter Information

Name: Rose Eckert
Address:
784 Providence Island Court
Jacksonville, FL, 32225
Email: rosemme@att.net

General Comment

Give priority to Alternative 5;
Do not exempt Maine or New Hampshire waters;
Gillnets should be included.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-9eur
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0100
Comment from carolyn massey

Submitter Information

Name: carolyn massey
Address: United States,

General Comment

i want to reduce whale entanglements by
1.supporting alternative #5 -the preferred proposed plan to reduce fatal entanglements
2. ensuring the the water of maine and new hampshire are included in the regulations and policy
3. including gillnets in entanglement reduction policy
4. increasing the management efforts in the mid-atlantic region
i am a supporter of wdc and whale lover. i want to protect the whales so we can countinue to enjoy them years down the road. your own research shows that the number of serious injuries and mortalities for right whales is nearly double sustainable limits and more than double the sustainable limits for humpback whale

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-nlh3
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0099
Comment from Joseph Wenzel

Submitter Information

Name: Joseph Wenzel
Address: United States,

General Comment

Hi NOAA, I'd like to urge you to support Alternative 5 to reduce fatal entanglements, include the waters of Maine and New Hampshire in the regulations and policy, include gillnets in the entanglement reduction strategies, and increase the management efforts in the mid-Atlantic region. Joseph Wenzel

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-40wv
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0098
Comment from Judy Johnson

Submitter Information

Name: Judy Johnson
Address:
1200 W. Winton Ave. Spc 27
Hayward, CA, 94545
Email: jandp1993@comcast.net
Phone: 510-881-1530

General Comment

I want to reduce whale entanglements by supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements. Increase the management efforts in the mid-Atlantic region. Include gillnets in entanglement reduction strategies. Ensure that the waters of Maine and New Hampshire are included in the regulations and policy. Protect large whales! I love whales. They are so beautiful and majestic. I care about the oceans and want to save this species. Please help reduce entanglements of right and humpback whales! REDUCING VERTICAL LINE IN THE WATER TO REDUCE ENTANGLEMENTS OF WHALES IS IMPORTANT TO ME!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-s5i8
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0097
Comment from Patti Packer

Submitter Information

Name: Patti Packer
Address:
5 Jennifer Rd
Scotia, NY, 12302
Email: pattiac@nycap.rr.com
Phone: 518-399-4843

General Comment

I am writing in support of 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements. We must ensuring that the waters of Maine and New Hampshire are included in the regulations and policy. We must also Include gillnets in entanglement reduction strategies. This will increase the management efforts in the mid-Atlantic region.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-992j
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0095
Comment from Phyllis Van Leuven

Submitter Information

Name: Phyllis Van Leuven
Address:
7474 Laughing Brook Court
Las Vegas, NV, 89131-2643

General Comment

I am supporting the Alternative #5 to reduce the fatal entanglements.

I have always been a whale watcher and love the humpback & right whales for many years. It's always been a passion to go boating & watch the whales on vacations.

I want to protect these whales to help save this species from these dangerous entanglements. Your own research shows that the number of serious injuries & mortalites for right whales has nearly double sustainable limits & more than double the sustainable limits for humpback whales. We must protect them to help them survive. These whales are such beautiful creatures, it would be ashamed to see them become extinct.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-28yo
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0094
Comment from Linda Walters

Submitter Information

Name: Linda Walters
Address: United States,

General Comment

REDUCE whale entanglements by:

Supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements
Ensuring that the waters of Maine and New Hampshire are included in the regulations and policy
Including gillnets in entanglement reduction strategies
Increasing the management efforts in the mid-Atlantic region
We need to protect all large whales

I am a Human who wants to protect the Oceans and the Creatures that live there. Protect them & we protect our future.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ao-vpho
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0093
Comment from Ellen Jahos

Submitter Information

Name: Ellen Jahos
Address: United States,

General Comment

I am writing to urge NOAA to adopt Alternative #5 regarding the proposed plan to reduce fatal entanglements of whales. I am a resident of New Hampshire, and an educator. My students spent all of the 2011-2012 school year studying whales and were amazed at the intelligence of these creatures but alarmed at the level of danger they are in and how close to extinction some whale populations are. They asked me over and over why our government was not doing more. I would like to be able to tell them that the waters of Maine and New Hampshire are going to be included in the regulations and policy that are being proposed. They would want to know that gillnets are included in entanglement reduction strategies and that the United States is doing much more in regard to their efforts to protect Whales in the mid-Atlantic region.

Please understand that our generation is already having to answer to the next generation. There should be no more excuses. These creatures are precious in their own right, but there is so much we can learn from them on so many levels. It's past time to act - no more excuses.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87as-3gj7
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0138
Comment from Bern Arnold

Submitter Information

Name: Bern Arnold
Address:
6716 NW 62nd Street
Tamarac, FL, 33321
Email: BenArnoldJr@yahoo.com
Phone: 954.721.5060

General Comment

These are the suggested methods to prevent whale entanglements and deaths that we can immediately implement:

Supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements

Ensure that the waters of Maine and New Hampshire are included in the regulations and policy

Include gillnets in entanglement reduction strategies

Increase the management efforts in the mid-Atlantic region

We've already destroyed much too much of our resources, flora and fauna, and covered over all our open spaces with concrete, steel and asphalt.

Not only that, but we have a federal government agency that is charged with indiscriminately killing wildlife of all types whenever they see them. We subsidize and actually aid in the roundup of wild horses for auctioning off to slaughterhouses in Mexico and they're trying to open slaughterhouses in this country.

What kind of barbarians are we to destroy our entire world in order to benefit a few corporations and people who are already much too rich on the 98 percenters' backs?

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87as-r8o8
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0135
Comment from Mike VanLandingham

Submitter Information

Name: Mike VanLandingham
Address: United States,

General Comment

I prefer alternative 5 and I do not want any exemptions and gillnets should be included. I love whale watching and will pay good money to see these amzing animals in the wild as would many other people. Therefore whale conservation is not not just a question of morals but also economics and your own research has found that the injuries and deaths caused by these methods is not sustainable.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ar-i4hw
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0134
Comment from Guy D'Angelo

Submitter Information

Name: Guy D'Angelo
Address:
10 Wesley Street
Center Moriches, NY, 11934
Email: guydangelo@yahoo.com
Phone: 6318782912

General Comment

On behalf of the protection of Right Whales (Eubalaena glacialis) I urge the support of Alternative #5. Right whales, owing to their small surviving members need maximum protection from any threat from injury or death caused by human activity.
Guy D'Angelo, Charter Member: Society for Marine Mammalogy

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ar-8gml
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0131
Comment from Danielle Herubin

Submitter Information

Name: Danielle Herubin
Address:
1774 Harborside Circle
Wellington, 33414
Email: beastwise@yahoo.com
Phone: 561-578-7982

General Comment

Dear NOAA,

I am a former award-winning journalist who now writes books. After two decades on reporting on most major issues, and covering The White House, Congress, federal agencies, business, and world events (and even Mickey Mouse), I believe I have a great grasp of what is really going on in this world. As an older person, I might even have some perspective.

What you do will be known to the world. For all time.

As a book writer, I will be writing books on this subject, perhaps both fiction and nonfiction. You might be in those books. Please don't make me have to lie just to say nice things about you. Because I might not lie. And the history books won't sugar coat it at all. They might even name each of you, those future generations. Your descendants might be embarrassed of you. Each of you are not some invisible bureaucrat. You are each individuals who have some very, very hard choices to make. You can be heroes or you can be cowards forever.

I believe as go the whales, so goes our planet. When this planet can't sustain these ocean beings, we won't be far behind, will we? You have to look at what role the whales play in our ecosystems. Not enough food for whales means there isn't enough plankton and fish, which is a major part of what feeds the world. When whales are sick from pollution, it means there won't be food for us, either. We would get sick from eating what is left in the oceans.

Should we add everyday slaughter to their environmental deaths that we started in the first place? The horrible deaths of these gentle giants, sometimes with their babies or loved family members

screaming in anguish for them, is too much to bear for any good person. You should listen to some recordings of this before you make your decisions. You know, I eat fish and shellfish all the time. I'm pretty sure a tuna doesn't cry out for its mother or beloved mate or baby as it is dying in a net. Nor does a shark. How can you live with the whales' sentient screams?

To make this worse, our Creator has given whales the right to live on this planet. If we are so foolish as to look the other way, or take part in the whales' tragic and heinous deaths, then we deserve the fate that awaits us.

I also love the whales on this planet and believe killing them is murder. If you can sleep at night knowing you are taking part in that mass murder, I would be surprised.

Here are some more specific thoughts:

I prefer Alternative 5
I do not want Maine or New Hampshire waters exempted.
I want gill nets to be included.

You need to protect the right whales and the humpback whales. Your own research shows these horrible fishing practices can't even meet our pathetically low government standards. I mean, should we set tolerable limits on the murder of children in New York? Would 300 a year be OK with you? Anything beyond that and maybe we'll do something? Are you really so heartless?

Allowable limits on murder is a falsity of conscience.

Sincerely,

Danielle Herubin

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ar-9who
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0130
Comment from Jay Rymer

Submitter Information

Name: Jay Rymer

General Comment

Whales and other marine dwelling creatures have been assaulted by gill nets and other industry debris. Here are some ways to help prevent more deaths, by supporting 'Alternative #5' would help end fatal entaglements. Also making sure that the waters of Maine and New Hampshire are included in the regulations and policy. Finally, if gillnets were incorperated in entanglement reduction strategies and increasing the management efforts in the mid-Atlantic region would help rectify the mass die off of ocean life.

With your help and the right plans put into place we will be able to keep whales and other animals alive and out of hrams way.

Thank you,

Jay Rymer

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ar-2adc
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0129
Comment from Bill Roseberry

Submitter Information

Name: Bill Roseberry
Address:
2151 Lincoln Hwy Apt G10
Levittown, PA, 19056
Email: wlroseberry@yahoo.com

General Comment

We must develop new standards for fishing practices that reduce dramatically the entanglement of whales and dolphins during commercial fishing runs. This destructive and cruel practice cannot continue. America also is in need of a comprehensive scalable fishing plan for our national waters and needs to bring this program to the international fishing nations.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ar-8ro9
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0125
Comment from Annah Gardner

Submitter Information

Name: Annah Gardner
Address:
1906 1st Ave S
Minneapolis, MN, 55403

General Comment

We need to protect whales. I support Alternative #5 and believe that the waters of Maine and New Hampshire should be included in the regulations and policy. Also, gillnets should be included in the entanglement reduction strategies and there should be increased management efforts in the mid-Atlantic region. thank you

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ar-opa4
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0123
Comment from KARLI MORTON

Submitter Information

Name: KARLI MORTON
Address: United States,

General Comment

PLEASE TAKE ACTION TO SAVE THE MAGNIFICENT WHALES FROM BEING CAUGHT IN THE GILL NETS.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87aq-omb8
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0119
Comment from Desiree Darden

Submitter Information

Name: Desiree Darden
Address:
31506 West Nine Dr
Laguna Niguel, CA, 92677
Email: desirdeartes@gmail.com
Phone: 9492188413

General Comment

To Whom it Concerns at NOAA.

I am writing because I am an ocean lover and I have a unique opportunity to work in the marine advocacy world on a daily basis, educating the public from around the world about what is going on, and what lay people can do to support what is important to them about the oceans, namely the protection and preservation of our beloved marine mammal species. I would like to be able to stand in support of NOAA and am writing to ask NOAA to please use your authority to help significantly reduce whale entanglements.

I write in support of 'Alternative #5' - And I ask that you ensure that Maine and New Hampshire are not exempt. And also, please, include gillnets in entanglement reduction strategies, as well as increase management in the mid-Atlantic.

Your own research shows that the number of serious injuries and mortalities for right and humpback whales is nearly double the sustainable limits. Please be a responsible force for the preservation of our whale species.

Thank you,
Desiree Darden
31506 West Nine Dr
Laguna Niguel, CA
92677

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87aq-zu5w
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0118
Comment from Julie Slater-Giglioli

Submitter Information

Name: Julie Slater-Giglioli
Address: United States,

General Comment

I SUPPORT ALTERNATIVE NO. 5, NO FURTHER ENTANGLING THESE LOVELY CREATURES, AND NO ONE NOR BUSINESS NOR CORPORATION SHOULD EVER DO ANYTHING TO REDUCE THE NUMBER OF THESE VALUABLE CREATURES IN OUR OCEANS!!!!!!

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87aq-7i96
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0117
Comment from Jennifer Stotlar

Submitter Information

Name: Jennifer Stotlar
Address: United States,

General Comment

To Whom It May Concern,

I am an elementary teacher, a mom, and a lover of our oceans. I am very concerned about the number of wildlife fatalities occuring in gill nets and other entanglements. I want the majestic right whales, along with all other species of whales, to be around for generations to come. I support Alternative #5. I support any and all measures that can help to protect these wonderful creatures and keep our oceans safe for marine life!

Sincerely,
Jennifer Stotlar

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ap-zxbp
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0116
Comment from Evelyn Rorick

Submitter Information

Name: Evelyn Rorick
Address: United States,

General Comment

NOAA is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but more gear types need to be included with a more comprehensive marking strategy to identify the kind of gear and where it was set. We need regulations that decrease entanglements of all large whales.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 28, 2013
Status: Pending_Post
Tracking No. 1jx-87ap-9nxk
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0115
Comment from Joseph Kotlinski

Submitter Information

Name: Joseph Kotlinski
Address:
9828 Melrose
Livonia, MI, 48150
Email: kotlin@ameritech.net

General Comment

I am an advocate for whale protection. I want gilnets banned. And no part of the US waters should be exempted from protection of whales. And finally I prefer Alternative #5 as being the best line of action.

Joe Kotlinski

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87ay-n7jm
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0144
Comment from gaile carr

Submitter Information

Name: gaile carr
Address:
1821 eddy dr
mount shasta, CA, 96067
Email: bgcarr@finestplanet.com
Phone: 530 926-4923

General Comment

Make the ship strike rule permanent. please select option 5.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87ax-o0ui
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0143
Comment from Prudence Brooks

Submitter Information

Name: Prudence Brooks
Address:
6238 N 63rd Ave #103
Glendale, AZ, 85301

General Comment

I support Alternate Number 5.

Reduction of the structure, form and function of 80 mile gilnets needs attention. I believe that needs both innovation and alternation.

Policing of the waters with regard to saving endangered species will become necessary.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87at-q0c9
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0141
Comment from Scott Heinze

Submitter Information

Name: Scott Heinze
Address:
1420 Grand Concourse #2M
Bronx, 10456-1121
Email: nycthirdwatch@aol.com
Phone: 917-453-6050

General Comment

I prefer alternative 5 and I do not want any exemptions and gillnets should be included. I love whale watching and will pay good money to see these amazing animals in the wild as would many other people. Therefore whale conservation is not not just a question of morals but also economics and your own research has found that the injuries and deaths caused by these methods is not sustainable.

PUBLIC SUBMISSION

As of: August 29, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87at-7tq3
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0140
Comment from Holly Hall

Submitter Information

Name: Holly Hall
Address:
31621 Corte Rosario
Temecula, CA, 92592-6484
Email: hahall51@verizon.net
Phone: (951) 699-2591

General Comment

Alternative #5 is a preferred way to protect large whales-right whales and humpback whales. We need to include gill nets that are trapping whales and are a danger to them, too. We need to protect all the waters where these mighty beings inhabit, including the waters off New Hampshire and Maine.

I am a teacher who tries to instill a respect for all earthly life-even the species that are maligned like wolves, bats and bees. Especially we care for all water mammals who live in families as we do, nurse their young, and grieve when family members are killed or captured. We want to help these species and we are boycotting Sea World because of its unethical means of obtaining new whales and dolphins.
Your own research has shown that they cannot sustain their numbers if the deaths continue unchecked.
We need your help passing Alternative #5 to save these species.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87b6-hq6g
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0163
Comment from Nicole Vinet

Submitter Information

Name: Nicole Vinet
Address:
5 Mastin Drive
Newmarket, NH, 03857
Email: nrvinet@gmail.com

General Comment

I am a native of the New Hampshire and southern Maine seacoast. I have grown up on the waters of the Atlantic and love the area and the wildlife. My family and I are boaters and often travel to the Isles of Shoals, Boon Island and Jeffery's Ledge off of the NH and ME seacoasts to view wildlife and enjoy nature. I care about our oceans and the safety of the wildlife, especially majectic whales and dolphins. I want to see my children grow up with the same passion and love for the ocean and its residents. The only way for that to happen is if we do our best to preserve and protect. Per NOAA's own research, the number of mortatilies is nearly double sustainable limits for right whales and more than double for humpback whales. It would be a travesty to all of us if we knew we could stop something so detrimental and did not.

I support "Alternative 5" to help reduce whale entaglements. I also want to ensure that this proposed plan includes the area that I so enjoy and love, the coast of New Hampsire and Maine. Further, I want gillnets to be included in the proposed plan.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87b6-lwiu
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0162
Comment from Dianne Douglas

Submitter Information

Name: Dianne Douglas
Address:
Phoenix, AZ,

General Comment

I want to REDUCE whale entanglements by:

1. Supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements
2. Ensuring that the waters of Maine and New Hampshire are included in the regulations and policy
3. Including gillnets in entanglement reduction strategies
4. Increasing the management efforts in the mid-Atlantic region

I am a supporter of animal and environmental rights. I believe every life has a purpose. All animals are individuals and they have feelings and thoughts and they suffer the pain and the joy that we do. They are entitled and they deserve an opportunity to live.

"The greatness of a nation and its moral progress can be judged by the way its animals are treated." Mahatma Gandhi

Your own research shows that the number of serious infuries and mortalities for right whales is nearly double sustainable limits and more than double the sustanable limits for humpback whales.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87b6-qqzk
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0161
Comment from Renee Vincent

Submitter Information

Name: Renee Vincent
Address:
931 E Oak Street
PO Box 173
Sequim, WA, 98382
Email: white_wolf@att.net
Phone: 360-797-1563

General Comment

Hello,
My name is Renee Vincent, a VERY concerned member of the human species. I LOVE ALL non-human Animals on this planet, including Whales. I live around the waters of the Pacific Northwest.

To begin with, there is ABSOLUTELY no reason humans cannot act, behave AND fish responsibly. WE are NOT the only one's making a living on this Planet. I am sick and tired of OUR arrogance and callous disregard. If humans want to be the "superior" species we LOVE to tell ourselves we are, then WE NEED to ACT IT. This total disregard about anything or anybody but OURSELVES needs to stop. This is NOT the behavior of a "superior" species.

That said, we need to reduce Marine Mammal entanglement from fishing lines AND gillnets. These entanglements are Fatal to the Whale or other Marine Mammal that becomes the victim of human indifference. I support Alternative #5 as the preferred proposed plan to reduce fatal entanglements (Gillnets most definitely Included).

We need to ensure ALL states are included in the regulations and policy. To exclude specific states such as Maine and New Hampshire is ludicrous. Marine Mammals do not know state boundaries that are human created. Marine Mammals enter waters of Maine and New Hampshire, therefore both states need be Included.

To ensure regulation and policy is adhered to I urge that management efforts in the mid-Atlanic region be increased. This is unfortunate, but humans left to their own devices never choose to do what is right, but what is easy for them. It is sad that the human mentality is based on greed,

exploitation and self serving actions instead of appreciation and respect for all life. Quite embarrassing to be human really. While we have evolved technologically in the last 2,000 years, we have not evolved as a species. Perhaps with all the challenges humans face on this Planet, it's time we do.

Thank you for taking my comments into consideration.
Sincerely,
Renee Vincent

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87b4-8x26
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0159
Comment from Mr. Michael C. Ford and Dr. Richard B. Marks

Submitter Information

Name: Mr. Michael C. Ford and Dr. Richard B. Marks
Address: United States,

General Comment

On this issue, we urge you to effect Alternative 5 and there should be no exceptions, including none for Maine and New Hampshire. Also, gillnets should be included.

We live in a coastal area, right by the Monterey Bay Marine Sanctuary and the whales, dolphins, and sea otters are an important part of our local environment and even our economy. Many tourists come to this area because of the sanctuary and what it means to the local marine wildlife. We have taken friends and visitors from other areas and from other countries whale watching, an important local tourist industry. We got as much out of it as they did, especially as we saw several species of dolphins and porpoises playing in schools.

The world's oceans are being degraded at an alarming rate and we need to do all we can to protect them and the creatures who live in them. Scientific studies, including your own, show that whales are being injured and killed in numbers that are causing their decline. We need to stop that to the best of our ability.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87b3-e9yh
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0156
Comment from Nancy Lowell

Submitter Information

Name: Nancy Lowell
Address: United States,

General Comment

I am writing to let you know that I wholeheartedly support 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements of whales. NOAA is the only authority that can make a difference, and it is hugely important that the agency acts. Aside from the fact that whales in general are endangered, and most sane and rational people are disgusted by the everyday loss of whole species from the world biome, the oceans cover 75% of our globe, and the whales and dolphins are an integral part of the ocean ecosystem.

We must reduce whale entanglements and Alternative 5 is a good start, but please include gillnets in entanglement reduction strategies, and extend the regulations and policy to the waters of Maine and New Hampshire. Increasing the management efforts in the mid-Atlantic region would also better protect the large cetaceans.

I understand that NOAA is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but more gear types need to be included and a more comprehensive marking strategy set up to identify the kind of gear and where it was set. I am really pleased that these actions are being seriously considered, and hope that all of these rules will be promulgated. They will certainly help reduce entanglements of right whales and will also benefit humpback whales as well.

Though I did not work as an environmental scientist I was educated and worked as a research scientist. I am very distressed in general by what I see happening to our planet, and to all of the creatures that live here with us. Any effort to prevent human destruction of our world is welcome. Please act on Alternative 5, and rigorously enforce it.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87b3-4ouv
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0154
Comment from Lynne Davies

Submitter Information

Name: Lynne Davies
Address:
327 Caselli AVE
San Francisco, CA, 94114
Email: lynne.davies3@gmail.com

General Comment

As a supporter of WDC I care about the oceans and I want right whales to be protected. For that reason I prefer alternate 5, I want gill nets to be included and I don't want Maine or New Hampshire waters to be exempted. Your own research shows that the number of serious injuries and mortalities for right whales is nearly double sustainable limits and more than double the sustainable limits for humpback whales.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87b2-vogd
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0152
Comment from Kathy Nix

Submitter Information

Name: Kathy Nix
Address: United States,

General Comment

Please help reduce entanglements of right whales. This regulation will also benefit humpback whales as well! Join us in letting NOAA know that we need them to protect large whales! NOAA is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87b2-7e0y
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0151
Comment from Gail Camhi

Submitter Information

Name: Gail Camhi
Address:
4 Fallen Leaf Way
Novato, 94949
Email: gailcamhia24@aol.com
Phone: 415-884-2875

General Comment

- Alternative 5 is preferred~!
- Maine and New Hampshire waters should NOT be exempted.
- Include gill nets~!

Hello~

Though I'm a New England transplant to California, please know I still adore East Coast whales.
I support Whale and Dolphin Conservation, and ask that management efforts be increased in the mid-Atlantic region.
Entanglements of whales and other ocean critters must be halted 100%. Please see to this ASAP, as it is a huge embarrassment to one and all.

Thank you kindly.

Gail Camhi
4 Fallen Leaf Way
Novato, CA 94949
415-884-2875

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87b1-yjh0
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0149
Comment from susan hawkins

Submitter Information

Name: susan hawkins
Address: United States,

General Comment

I am writing to ask that the Proposed Rule: Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan, be passed. There needs to be things done, like mammals being caught up and entangled in fishing nets, and they horribly die from drowning. There is no excuse for this to continue any longer. No more mammals should have to die out of needless poor use of fishing, and it needs to stop now. Please hear my plea, and thank you for listening. Bless the innocent marine mammals that are wounded and killed, and protect them please. Blessed Be.)O(Susan.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87b1-vjtd
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0148
Comment from Christie Spriggs

Submitter Information

Name: Christie Spriggs
Address: United States,

General Comment

To Whom it May Concern,
I am a teacher, boater, and supporter of WDC and would like to voice my opinion to strongly support 'Alternative #5'. We need to protect the ocean's marine life, in particular and especially our large whales. Please do not exclude Maine & New Hampshire from this decision as they are home to many right whales and humpbacks! Please also include gillnets in this consideration.

It is important that we try to protect all animals to ensure survival for each species. As a teacher I am writing this letter because I want to show my students that caring for our environment in various different ways effects all animals and living things. It is important for our own species to say something that may help those who can't speak for themselves.

Thank you for your consideration!

Sincerely,
Christie Spriggs
Balirstown, NJ
United States of America

PUBLIC SUBMISSION

As of: September 03, 2013
Received: September 01, 2013
Status: Pending_Post
Tracking No. 1jx-87ct-gl0g
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0194
Comment from Jorge De Cecco

Submitter Information

Name: Jorge De Cecco
Address:
705 North State Street # 268
Ukiah, CA, 95482
Email: bndass@yahoo.com

General Comment

This is in support of Alternative 5, with no exclusion for gillnets, and no exemption for Maine and New Hampshire.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 31, 2013
Status: Pending_Post
Tracking No. 1jx-87ck-zqu9
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0193
Comment from Lara Metrione

Submitter Information

Name: Lara Metrione
Address: United States,

General Comment

I am writing in support of 'Alternative #5' - the proposed plan to reduce fatal entanglements. It is critical that the waters of Maine and New Hampshire are included in the regulations and policy. Gillnets must be included in entanglement reduction strategies, and there must be an increase in the management efforts focused in the mid-Atlantic region. Thank you.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 31, 2013
Status: Pending_Post
Tracking No. 1jx-87cg-tj6u
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0191
Comment from Jane Rigney

Submitter Information

Name: Jane Rigney
Address:
139 East Shore Lake Owassa
Newton, NJ, 07860
Email: Jane.Rigney139@aol.com
Phone: 973-948-2561

General Comment

I am a longtime supporter of numerous organizations that protect marine animals, among them the Marine Mammal Center, the Wildlife Conservation Society, Whale and Dolphin Conservation, Greenpeace, the Cousteau Society, the Ocean Futures Society and many more. I am writing to express my strong support of regulations to safeguard right whales. I want to REDUCE whale entanglements in fishing nets by:

1. Supporting Alternative Number 5 -- the preferred proposed plan to reduce fatal whale entanglements.

2. Ensuring that the waters of Maine and New Hampshire are included in regulations and policy. Those states must not be exempted.

3. Including gillnets in whale-entanglement-reduction strategies.

4. Increasing management efforts in the mid-Atlantic region.

It is urgent that the National Oceanic and Atmospheric Administration reduce entanglements of large whales, especially right whales. A regulation to that effect will benefit humpback whales as well.

I understand that NOAA is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys. That sounds good, but NOAA also needs to include more gear types and a more comprehensive marking strategy to identify kinds of gear and where each was situated.

Thank you for reading my message and considering my views.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 31, 2013
Status: Pending_Post
Tracking No. 1jx-87cc-a65m
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0190
Comment from Jessica Willmert

Submitter Information

Name: Jessica Willmert
Address:
3611 85th ST NW #30
Oronoco, MN, 55960
Email: jrv.81@hotmail.com

General Comment

I prefer alternative #5, to include gillnets, and I do not want Maine or New Hampshire to be exempt.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 31, 2013
Status: Pending_Post
Tracking No. 1jx-87c4-ufg3
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0188
Comment from Cheryl Fergeson

Submitter Information

Name: Cheryl Fergeson
Address: United States,

General Comment

I am asking NOAA to please reduce entanglements and protect large whales such as the right whales and the humpback whales. I support Alternative #5, and I don't want Maine and New Hampshire waters to be exempted. I also want gillnets to be included. Protecting the oceans and its wildlife is crucial to the future of life on this planet. If the oceans ecosystems die, so will everything else on earth, including people. Please protect these majestic large whales, as well as all the life in the oceans, so that the environment can be healthy and safe for the future. I hope that NOAA will reduce the number of vertical lines in the water and keep the whales protected!

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 30, 2013
Status: Pending_Post
Tracking No. 1jx-87c3-vtkd
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0187
Comment from Jim Brown

Submitter Information

Name: Jim Brown
Address: United States,

General Comment

The killing of whales and dolphins by fishing net and equipment MUST be eliminated. Fishing net must be made to eliminate the entanglement of marine mammals by design, regulations and technology such as devices that will allow whales and dolphins to avoid nets with sonar devices. It is imperative to protect marine mammels.
Jim Brown

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 30, 2013
Status: Pending_Post
Tracking No. 1jx-87bu-7y0b
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0179
Comment from Barbara Hegedus

Submitter Information

Name: Barbara Hegedus
Address:
404 Fox Trl.
Parkesburg, PA, 19365-9198
Email: hpixel@peoplepc.com

General Comment

Please SUPPORT ALTERNATIVE #5, to reduce fatal entanglements. Humans should be protecting other members of the animal kingdom - not dooming them, one by one, to torture and death for our benefit.

Please make the ethical - and moral - decision, not the quick or political one.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 30, 2013
Status: Pending_Post
Tracking No. 1jx-87bt-lnwc
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0178
Comment from Kira Schabram

Submitter Information

Name: Kira Schabram
Address: United States,

General Comment

As a concerned citizen, I support 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements. Thank you for your consideration.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 30, 2013
Status: Pending_Post
Tracking No. 1jx-87bh-891n
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0175
Comment from Eric Campbell

Submitter Information

Name: Eric Campbell
Address:
Ann Arbor, MI, 48103

General Comment

Protecting whales is vital for the future health our our oceans. I do not want my children to grow up without ever seeing these creatures. I support alternative #5 and gillnets should most definitely be included. Please listen to science and not those out to make short-term profits at the expense of our only home.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87bf-d51q
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0174
Comment from Terry Travis

Submitter Information

Name: Terry Travis
Address:
91-999 La'aulu St.
Ewa Beach, HI, 96706
Email: terrytravis@hawaiiantel.net

General Comment

I strongly support alternative 5 and I do not want any exemptions. Gillnets should be banned. Living in Hawaii, I love whale watching. And whale watching is a good tourist attraction which helps our economy - people pay good money to see these amazing mammals in the wild. Whale conservation is not not just a question of environmental concern but also economics and your own research has found that the injuries and deaths caused by these methods makes whale survival questionable.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: August 29, 2013
Status: Pending_Post
Tracking No. 1jx-87bd-b5lb
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0173
Comment from s. w.

Submitter Information

Name: s. w.
Address: United States,

General Comment

Please support "Alternative #5" and help reduce entanglements of right whales. You are proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set. We need to ensure that the waters of Maine and New Hampshire are included in the regulations and policy, that includes gillnets in entanglement reduction strartegies, and increasing the management efforts in the mid-Atlantic region.

Remember, your own research shows that the number of injuries and mortalities for right whales is nearly double sustainable limits and more than double the sustainable limits for himback whales. Protecting these whales will not only help them surviive but the rest of the marine ecosystem(s) thrive.

As someone who cares deeply about whales, and life in general, I want to help ensure their safety. Who dosen't want to SAVE THE WHALES!

PUBLIC SUBMISSION

As of: September 03, 2013
Received: September 03, 2013
Status: Pending_Post
Tracking No. 1jx-87eh-n7t0
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0210
Comment from Julie Jensen

Submitter Information

Name: Julie Jensen
Address:
562 West End Avenue
New York, 10024

General Comment

Please help reduce entanglements of right whales. This regulation will also benefit humpback whales as well! We need the the NOAA to protect large whales!

Please include more gear types and a more comprehensive marking strategy to identify the kind of gear in the proposal to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys.

Thank you so much for helping Marine Mammals!!

PUBLIC SUBMISSION

As of: September 03, 2013
Received: September 03, 2013
Status: Pending_Post
Tracking No. 1jx-87ec-asm1
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0209
Comment from Evgeniia Romakhova

Submitter Information

Name: Evgeniia Romakhova
Address: United States,

General Comment

Dear Decision Maker!
I support "Alternative #5" and I want to be sure that the waters of Maine and New Hampshire are included in the regulations and policy.
I am a life-long animal advocate and for me the number of fatal entanglements of marine life is shocking. According to NOAA research the number of serious injuries and mortalities in right whales is nearly double the sustainable limits, and more than double the sustainable limits for humpback whales.
Please find a way to reduce the speed of extinction of the larger whales!
Cordially,
Evgeniia Romakhova.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: September 02, 2013
Status: Pending_Post
Tracking No. 1jx-87ds-em6g
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0206
Comment from Jeffrey Nosbaum

Submitter Information

Name: Jeffrey Nosbaum
Address:
Seattle, WA, 98121-1190

General Comment

Hello,
I am writing to ask you to choose "Alternative #5" as the preferred plan to reduce fatal entanglements. I believe the NOAA should also ensure that the waters of Maine and New Hampshire are included in the regulations and policy, as well as including gillnets in entanglement reduction strategies generally. I would also ask that the NOAA increase its management efforts in the mid-Atlantic region.

We must improve and expand our efforts to reduce fatal entanglements of whales. Thank you very much for your time and consideration.

Best regards,
Jeff Nosbaum

PUBLIC SUBMISSION

As of: September 03, 2013
Received: September 02, 2013
Status: Pending_Post
Tracking No. 1jx-87dr-84ni
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0205
Comment from Jim Clouse

Submitter Information

Name: Jim Clouse
Address:
270 Highland Ave.
Apt 21
Somerville, MA, 02143
Email: clousejim@gmail.com
Phone: 805-558-8201

General Comment

The proposed changes documented here are encouraging for the future of endangered whales species, particularly the NA right whale. The thorough research backing these changes is impressive and it is encouraging that the NMFS is suggesting an approach that differs per region based on the specific needs of whales in those regions. It is also encouraging and important that the NMFS is proposing alterations based on recent scientific findings of high density whale locations, as these locations are sure to change over time. I hope that NOAA understands this and weighs this as part of their decision.

While these proposed changes will surely affect certain fisherman and their families, an entire species of whale depends on this change.

I also strongly urge the task force to continually re-evaluate these areas and promptly suggest the re-opening of fishing areas that whales move away from, as this will help to foster trust, support, and collaboration with the New England and Florida fishing industries.

I strongly urge NOAA to enact these well researched and science-based proposals.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: September 02, 2013
Status: Pending_Post
Tracking No. 1jx-87di-x0q1
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0204
Comment from Nancy Gathing

Submitter Information

Name: Nancy Gathing
Address:
3701 Tulane Ave.
Madison, WI, 53714
Email: nancygathing@yahoo.com
Phone: 608-241-4746

General Comment

I endorse the enactment of Alternative 5 to greatly reduce the frequently fatal entanglements of large whales, especially highly endangered right whales and humpback whales. NOAA is proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys, but more gear types, including gillnets, must be restricted and with a more comprehensive marking strategy to identify the kind of gear and where it was set. The waters of Maine and New Hampshire must not be exempted from the restriction. Like so many others, I find whales a fascinating work of art which must not be lost, nor can their significant impact upon tourism be disregarded.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: September 01, 2013
Status: Pending_Post
Tracking No. 1jx-87db-euiy
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0203
Comment from Linda Mooney

Submitter Information

Name: Linda Mooney
Address: United States,

General Comment

I support alternative 5. I want gillnets to be included and do not want Maine and New Hampshire waters exempted.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: September 01, 2013
Status: Pending_Post
Tracking No. 1jx-87d9-3tgz
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0201
Comment from Judith Ferrell

Submitter Information

Name: Judith Ferrell
Address: United States,

General Comment

Please take any measures (Alternative 5) that will stop or lessen entanglement that have such damaging and fatal effects upon right whales and other whales. Right whales in particularly are endangered and we have a responsibility to try to reverse the situation for the betterment of the oceans. Thank you for your time.

PUBLIC SUBMISSION

As of: September 03, 2013
Received: September 01, 2013
Status: Pending_Post
Tracking No. 1jx-87d8-n99l
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0199
Comment from Kathleen Geist

Submitter Information

Name: Kathleen Geist
Address: United States,

General Comment

Right Whales are a critically endangered species, and need all the help/protection possible for their recovery.

I'm a member of WDC (Whale & Dolphin Conservation), and have adopted a Humpback Whale ("Cat's Paw") for several years. I use info from WDC, and about "my" whale in my Life Science classroom. My students and I would be heartbroken if Cat's Paw or any of her extended family were injured/killed by being entangled in fishing gear.

We are in favor of:
* Supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements
* Ensuring that the waters of Maine and New Hampshire are included in the regulations and policy
* Including gillnets in entanglement reduction strategies
* Increasing the management efforts in the mid-Atlantic region

PUBLIC SUBMISSION

As of: September 09, 2013
Received: September 08, 2013
Status: Pending_Post
Tracking No. 1jx-87i0-z04h
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0227
Comment from Eugene Cahill

Submitter Information

Name: Eugene Cahill

General Comment

Thank you for allowing comments on this important issue. I am someone who cares deeply about wildlife, and certainly ocean wildlife, and we need to save this species.

I prefer alternative 5, and please please do not allow Maine and New Hampshire waters to be exempted! Also, it is vitally important that gillnets be included!

As per the NOAA's own research; the injuries and deaths are far above sustainable limits. As someone who cares about whales, I think that says it all.

Thank you!

PUBLIC SUBMISSION

As of: September 09, 2013
Received: September 08, 2013
Status: Pending_Post
Tracking No. 1jx-87ht-tlu1
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0226
Comment from Susan Von Struensee

Submitter Information

Name: Susan Von Struensee
Address:
7730 Willow Point Drive
Falls Church, VA, 22042
Email: Susan.vonstruensee@gmail.com

General Comment

Our beautiful whales need protection from man made injury and death due to entanglement in fishing gear.
This proposed rule to reduce the impact from vertical lines running from surface buoys down to traps and pots at the ocean bottom is the next step to reduce this risk.

To reduce entanglements of right and humpback whales we need NOAA's proposal to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

As whales dive down to feed, fishing lines (thick ropes), nets or other gear can get caught in their mouths, on their flippers or around their tails resulting in entanglement that can lead to extensive injuries or a slow, painful death. Whales that encounter fishing gear often panic and spin in an attempt to free themselves, a response that only entangles them further. In some cases the weight and strength of the gear can be too much to overcome, anchoring the whale to the bottom causing it to drown.

I was shocked and horrified when I first saw images of entanglement injuries and cannot imagine the pain these animals have suffered. With chronic entanglements the rope can end up cutting through skin and bone. In juveniles the rope has even become embedded in their body as they continue to grow.

This threat is particularly acute for North Atlantic right whales, whose population is estimated at only about 500 individuals. North Atlantic right whales, sometimes called the urban whale, migrate close to shore and tend to frequent areas close to ports. Sadly this puts them directly in the path of

passing boats and means they tend to concentrate in the same areas with the greatest amount of fishing effort. Nearly three quarters of all right whales show scarring and other signs of entanglement.

In 2004, the Massachusetts (MA) Lobstermen's Association and the National Fish and Wildlife Foundation supported a successful pilot project to subsidize the voluntary replacement of floating groundline with whale safer sinking groundline. Groundline is the fishing line that runs along the ocean bottom between traps, pots or gillnets or to the anchors on the end of these lines. Replacing floating line with heavy line that sinks means fewer whales get entangled in the line when diving down to feed. In 2008 this program was expanded to include the entire east coast, after consideration and development of recommendations by the Atlantic Large Whale Take Reduction Team (ALWTRT). This team composed of fishermen, state fisheries representatives, conservation groups, scientists and NOAA Fisheries Service helps inform the rules implemented to reduce injury and death of large whales (right, humpback, fin and minke) from incidental entanglement in fishing gear.

However the current rate of injuries and deaths due to entanglement still exceeds the amount prescribed to support recovery and protection of these whales. So a new rule is in development to address the additional risk from vertical lines that run from buoys at the surface down to the traps and pots on the bottom. NOAA's draft rule outlines a set of proposed alternatives. While each alternative has strengths and weaknesses I am supportive of NOAA's preferred alternative, Alternative 5. This alternative presents a positive, practical solution that incorporates proposals from NOAA, the states, conservation groups and scientists alike, and is expected to achieve the greatest reduction in risk to whales through reduction in total number of vertical lines, and inclusion of fishing closures in key areas with high co-occurrence of whales and fishing effort.

This matter is extremely important. The survival of North Atlantic right whales may very well depend on the actions that NOAA takes in the coming years, with this rule being the next vital step.

PUBLIC SUBMISSION

As of: September 09, 2013
Received: September 08, 2013
Status: Pending_Post
Tracking No. 1jx-87hi-nslw
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0225
Comment from Adele Henkel

Submitter Information

Name: Adele Henkel
Address: United States,

General Comment

We need to REDUCE whale entanglements by:

- Supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements
- Ensuring that the waters of Maine and New Hampshire are included in the regulations and policy
- Including gillnets in entanglement reduction strategies
- Increasing the management efforts in the mid-Atlantic region

Please help reduce entanglements of right whales, and then, the same regulation will also benefit humpback whales!

I know you're proposing to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types and a more comprehensive marking strategy to identify the kind of gear and where it was set.

Just as I respect a right to (a good) life for every person living on earth, I love the oceans and all of the cetaceans living there too--they are fellows in the sea. Let's all take on as much responsibility for their well being as we can until the day that our political and economic protocols, and use of technology mature--so as to not threaten their existence.

I've experienced free-swimming dolphins and whales in open ocean. I KNOW, they are like...us!

PUBLIC SUBMISSION

As of: September 09, 2013
Received: September 07, 2013
Status: Pending_Post
Tracking No. 1jx-87hc-wq88
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0223
Comment from Diane Kent

Submitter Information

Name: Diane Kent
Address: United States,

General Comment

I prefer alternative 5 and I do not want any exemptions and gillnets should be included. I love whale watching and will pay good money to see these amzing animals in the wild as would many other people. Therefore whale conservation is not not just a question of morals but also economics and your own research has found that the injuries and deaths caused by these methods is not sustainable.

PUBLIC SUBMISSION

As of: September 09, 2013
Received: September 07, 2013
Status: Pending_Post
Tracking No. 1jx-87ha-axaa
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0221
Comment from Norma Campbell

Submitter Information

Name: Norma Campbell
Address:
37 Decorah Lane
Campbell, CA, 95008-2424
Email: Sqrrlady@hotmail.com
Phone: 408-559-7379
Fax: 408-559-7379

General Comment

NOAA must strive to reduce by at least 90% the incidental take af any whale or cetacean in commercial fishing operations.

One way to do that is to reduce the number and type of nets used. New must not be allowed close to the whales normal feeding, breeding or resting waters or normal routes. If these routes are changed by the whales or other cetaceans then the commercial nets must also be moved out of the way of the whales whereever they go. This is to include all net types, gills included.....

PUBLIC SUBMISSION

As of: September 09, 2013
Received: September 07, 2013
Status: Pending_Post
Tracking No. 1jx-87h9-glqm
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0220
Comment from Norma Campbell

Submitter Information

Name: Norma Campbell
Address:
37 Decorah lane
Campbell, CA, 95008-2424
Email: Sqrrlady@hotmail.com
Phone: 408-559-7379
Fax: 408-559-7379

General Comment

I am totally in favor of reducing Whale and other cetaceans entanglements in fishing nets, gill nets included. These nets are totally indescriminate and should be banned anywhere near whale routes. If the route changes due to season then the net areas should change in accordance to the whale route. I understand that proposal #5 would give the best protection against entanlement and that is the Proposal that I wish to see enacted.

However it must be spelled out that this applies to all nets, gill, seine,nets that go from the lobster beds to the surface, entanglements in these must be reduced. No whales can be allowed to be caught. It is important that the waters off the States of Maine, New Hampshire are included in the proposals.

Every management effort should be put to the best and strongest use in this matter in the Mid-Atlantic Ocean. We as a Nation must protect all Whales.

PUBLIC SUBMISSION

As of: September 09, 2013
Received: September 07, 2013
Status: Pending_Post
Tracking No. 1jx-87h9-s9ud
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0219
Comment from Radko Vacek

Submitter Information

Name: Radko Vacek
Address:
1024 E. Broadway St.
Toledo, OH, 43605
Email: mystarlink@yahoo.com

General Comment

Samuel Rauch
Acting Assistant Administrator for NOAA Fisheries
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Dear Mr. Rauch:

I know of no better way to start than to quote one of the greatest authorities of modern times, Albert Einstein: "Our task must be to free ourselves... by widening our circle of compassion to embrace all living creatures and the whole of nature and its beauty."

What better representation of eternity can there be than the ocean? Our little lives are but mere drops to join the water of the vastness of the sea! Compared to the profundity of the whole of nature, materialistic concerns, including the endless quest for profit, are petty indeed. The point of Einstein's statement is that the development of human potential is at least as much a matter of the awakening of the spirit as of the sharpening of the mind. As Anatole France, 1921 Nobel Prize in literature Laureate put it, "Until one has loved an animal, a part of one's soul remains unawakened."

What is life without causes to defend? Certainly, nothing inspires more religious awe than the ocean and the wonder of her creatures. In this troubled world there are many causes; yet, none is more worthy of our utmost efforts than to expand the critically needed protections of the North Atlantic right whale.

Regulations restricting the speed of marine vessels in certain areas at certain times of year were put in place to guard against this threat in 2008. However the "sunset" provision allows endangered species protections to be removed simply because an arbitrary date has been reached. Your agency must act now to ensure that these creatures continue to receive protections which are essential to their survival.

Not only does current information show a continued justification for the existing rule, but also demonstrates the need for expanded protective measures to reduce the risk of ship strikes for the remaining North Atlantic right whale population:

1) Each year, endangered NA right whales become entangled in commercial fishing gear. Entanglement makes it harder for them to swim, feed and reproduce and it can cause a chronic infection or even drowning. NMFS has cited entanglements in commercial fishing gear as one of the most significant threats to the right whale's survival and recovery. Yet, almost every year since 2002, at least one entangled right whale has been found dead or so gravely injured that death is deemed likely. Reducing the amount of vertical line in the water column will significantly reduce this threat but the proposed timeline set out by NMFS is prolonged and must be expedited.

2) As outlined in the proposal forwarded by the Conservation Community in February 2013 the, waters currently exempted from the Plan should be reconsidered; year round gear marking should be required, additional measures in the Southeast Region, for gillnet fisheries, and for monitoring and enforcement must be included. Most importantly, the release of a rule must be expedited.

Scientific data accumulated over the 15 years since the original Critical Habitat designation have more directly tied the presence of right whales to the physical and biological constituent elements that make these habitats so important for the species, and which may require special management considerations or protection. The expansion of critical habitat will provide an important layer of protection that has so far been lacking for much of the right whale's essential habitat. Amending the right whale's critical habitat designation to include the waters off the Northeast United States to include the Gulf of Maine and its associated Bays, the coastal waters from the shore out to 35 nautical miles off the coasts of South Carolina, Georgia and Florida as well as all waters along the migratory corridor of the mid-Atlantic from the shore out to 30 nautical miles, between the northern border of South Carolina northward to the southeastern corner of Cape Cod, Massachusetts will provide protection for habitats essential to the species' reproduction, feeding, sheltering, growth, and normal behavior.

The remaining population of North Atlantic right whales resides almost exclusively in US waters, but this species belongs to the world. The way this legislation and its enforcement are handled will indeed make a statement about our nation to the whole world! Hardly can any of us argue with someone of the stature of Mahatma Gandhi: "The greatness of a nation and its moral progress can be judged by the way its animals are treated."

It is the duty of the National Marine Fisheries Service to protect these whales and ensure their future for generations to come. I ask you to consider these comments as the Agency moves forward with rule development to reduce the threats of ship strikes and fishing gear entanglements and increases Critical Habitat for this species.

PUBLIC SUBMISSION

As of: September 09, 2013
Received: September 05, 2013
Status: Pending_Post
Tracking No. 1jx-87g2-rk0n
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0217
Comment from Douglas Perrine

Submitter Information

Name: Douglas Perrine
Address: United States,

General Comment

I support the Atlantic Large Whale Take Reduction Plan. The North Atlantic right whale is Critically Endangered, with entanglement in fishing gear as one of the two leading causes of mortality. This plan will attempt to reduce that mortality without placing excessive burdens on fishers. We need to take action to prevent this species from declining into extinction.

PUBLIC SUBMISSION

As of: September 09, 2013
Received: September 05, 2013
Status: Pending_Post
Tracking No. 1jx-87fw-roaq
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0216
Comment from adam mills

Submitter Information

Name: adam mills
Address: United States,

General Comment

I prefer alternative 5. I don't want Maine and New Hampshire waters exempted. I want gillnets included.

PUBLIC SUBMISSION

As of: September 09, 2013
Received: September 05, 2013
Status: Pending_Post
Tracking No. 1jx-87fv-fd9j
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0214
Comment from Barbara Beierl

Submitter Information

Name: Barbara Beierl
Address: United States,

General Comment

Whale entanglements must be reduced, and they will be if Alternative #5 is enacted. Please make sure that the waters of Maine and New Hampshire are included. Additionally, the use of lines that go from the lobster and crab pots to the surface buoys. Including more gear types and a more comprehensive marking strategy to identify the kind of gear and location, need restriction as well. Both right and humpback whales will be protected if these steps are taken. Thank you for your attention.

PUBLIC SUBMISSION

As of: September 09, 2013
Received: September 05, 2013
Status: Pending_Post
Tracking No. 1jx-87fs-zyht
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0213
Comment from Rachel Krucoff

Submitter Information

Name: Rachel Krucoff
Address:
Chicago, IL, 60615
Email: rkru@att.net

General Comment

As someone who cares deeply about our oceans and the incredible species they support, I am writing to urge you to choose proposed Alternative 5 to reduce whale entanglements and subsequent fatalities. It is truly heartbreaking to me that these majestic creatures should suffer so greatly. It is our responsibility to protect them, and yet your own research shows that the number of serious injuries and deaths among both right whales and humpback whales far exceeds sustainable limits.

It is also crucially important that you include the management of gill nets in any entanglement reduction plan. The kind of harm caused by these nets can be gruesome for whales. Beyond even the recorded fatalities, whales that survive an entanglement in a gill net may still carry gear related to that entanglement causing them to slowly die of starvation. How can we continue to allow this? One solution might include switching to lighter line that would break if it caught anything so large as a whale. Another possibility I've read would be to use a less buoyant line that runs along the sea floor instead of floating suspended in the water.

Lastly, I urge you include the waters of New Hampshire and Maine in any proposed regulations.

Thank you so much for your time and consideration.

PUBLIC SUBMISSION

As of: September 11, 2013
Received: September 10, 2013
Status: Pending_Post
Tracking No. 1jx-87j9-wzr1
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0235
Comment from Dana Richardson

Submitter Information

Name: Dana Richardson
Address: United States,

General Comment

I prefer alternative 5 to please protect these remaining right whales.

PUBLIC SUBMISSION

As of: September 11, 2013
Received: September 10, 2013
Status: Pending_Post
Tracking No. 1jx-87j8-qkhk
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0232
Comment from Doug Perrine

Submitter Information

Name: Doug Perrine
Address: United States,

General Comment

Please enact the preferred alternative (alternative #5)

PUBLIC SUBMISSION

As of: September 11, 2013
Received: September 10, 2013
Status: Pending_Post
Tracking No. 1jx-87j7-9uju
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0231
Comment from Bridgett Heinly

Submitter Information

Name: Bridgett Heinly
Address:
4440 Brindisi St
San Diego, CA, 92107
Email: kbmdogs@att.net

General Comment

I am asking NOAA to protect whales and prefer Alternative 5 as a way to reduce unnecessary deaths. As a yacht club member, I spend a lot of time at the ocean and I want to have protections in place for these magnificent animals. I would hate to see them disappear from our oceans.

I would also like to remind NOAA that research has shown that the number of serious injuries and deaths for right whales is almost double the sustainable limit and more than double the sustainable limit for humpback whales. Choosing Alternative 5 will help protect these whales.

PUBLIC SUBMISSION

As of: September 11, 2013
Received: September 10, 2013
Status: Pending_Post
Tracking No. 1jx-87j7-zk3f
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0230
Comment from Nathan Roche

Submitter Information

Name: Nathan Roche
Address: United States,

General Comment

I am a supported of Whale and the Dolphin Conservation Society, currently living in the UK but have been employed at US universities in the past, and I have gone on a number of very successful whale-watching trips, including from northern Massachusetts and California. Had terrific views of the Humpbacks. Did not see the Right Whales but I later saw some from South Africa. Whales and dolphins are, I believe as intelligent and important as human beings and of course I don't want to see them killed by entanglements or ship strikes. We have caused so much harm to whales in the past. It is now in our interest to protect them and their habitats, for tourism, science and our spiritual benefit. We should take care that they not be harmed by shipping etc. just as we should not risk human life. Furthermore many cetaceans are still endangered, even critically so, especially the rare Northern Right Whale. It is not acceptable for even one individual to be killed. Fishing should be reduced anyway to safeguard the marine ecology and I am even more concerned about the potentially lethal impacts of overfishing and entanglements on cetaceans, pinnipeds and seabirds.

Therefore I support maximum protection measures for the whales, your Alternative 5, with the additional measures (i) The waters off New Hampshire and Maine should NOT be exempted. (ii) Additional gear marking strategies must be included to differentiate gear types and regions.
(iii) Gillnets should not be exempted from entanglement reduction strategies.
(iv) A seasonal closure for black sea bass traps in the Southeast Restricted Area must be implemented to protect newborn critically endangered right whales.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l8-rd0q
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0259
Comment from Dianne Douglas

Submitter Information

Name: Dianne Douglas
Address:
Phoenix, AZ,

General Comment

We need to protect large whales! I prefer alternative #5. I do not want Maine or New Hampshire waters exempted and want gillnets to be included. I love nature and am a whale watcher when I get the opportunity to get to the coast.

NOAA is proposing to restrict the use of risk-prone lines that connect lobster and crab pots to surface buoys, but they need to include more gear types and a more comprehensive marking strategy to identify the type of gear and where it was originally set.

NOAA own research shows tht the number of serious injuries and mortalities for right whates is nearly doubled sustainable limits and more than double the sustainable liits for humpback whales or that protecting them will help them survive.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l5-2248
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0249
Comment from Gail Jacobson

Submitter Information

Name: Gail Jacobson
Address: United States,

General Comment

I prefer alternative 5. I want gillnets to be included and do not want Maine and New Hampshire waters exempted.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l5-cg9y
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0248
Comment from Julia Moyse

Submitter Information

Name: Julia Moyse
Address: United States,

General Comment

As a lover of whales and dolphins I as you to stop using vertical lines that entangle them. Your research shows that the number of injuries and fatalities is nearly double sustainable levels. We cannot lose these beautiful right whales. I support alternative 5 and want Maine and New Hampshire waters to be included and gillinets to be included.
Thank you for your help.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l5-3n4b
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0247
Comment from Melissa Baldey

Submitter Information

Name: Melissa Baldey
Address: United States,

General Comment

I prefer alternative 5 and I do not want any exemptions and gillnets should be included. I love whale watching and will pay good money to see these amazing animals in the wild as would many other people. Therefore whale conservation is not not just a question of morals but also economics and your own research has found that the injuries and deaths caused by these methods is not sustainable.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 12, 2013
Status: Pending_Post
Tracking No. 1jx-87kk-qvq5
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0244
Comment from Peter Seminara

Submitter Information

Name: Peter Seminara
Address: United States,

General Comment

To Whom it may concern:

I am a commercial lobsterman in Gloucester MA and would like to comment on the proposed actions by the ALWTRT to amend the ALWTRP to one of the alternatives proposed by non-fisherman stakeholders, i.e. Alternative 5. Alternative 5 calls for increased markings of all endlines, trawling up in co-occurrence areas, and a closure of some of the most productive local lobstering grounds during the most productive time of the season.

The closure is mainly what I would like to comment on. The proposed Alternative calls for the closure of Jeffrey's Ledge from October 1 to January 31. Jeffery's Ledge is a historically productive lobstering ground and much of the federally permitted fleet depends on this area to make their year's income during these months. By utilizing Alternative 5 as the amendment to the ALWTRP a significant portion of the lobster fleet will be displaced. This not only will be harmful to the local lobstering industry but also to the numerous shoreside industries that depend on the lobster industry.

The research by the conservation stakeholders that led to the proposal of this closed area is faulty at best. The statistical data presented to support this alternative has been summed up by one peer review of this plan as:

"The model structure is rather awkward and very dependent on empirical data inputs for both fishing gear and whales...I was surprised that the authors of the model did not describe any attempts to validate their results. This is especially important given that the model outputs are intended to be used to guide management decisions that will have important effects on fishermen and whales...Thus, it is my opinion that other model approaches might have been preferrable and that this version of model is not ready to be used in a management application until its performance has been validated or compared with other approaches."

(http://www.nero.noaa.gov/protected/whaletrp/eis2013/reviewer_1_redacted.pdf) pg. 2

In short, any closure is a hasty and unproven method of protecting both the large whales that face a risk of entanglement as well as the local lobstering industry, the second most lucrative fishery in the Commonwealth.

I urge you to reconsider putting Alternative 5 into action until better research can gather more sound data. As of now, Alternative 5 is a knee-jerk reaction to a problem that can be solved with less of a financial burden on the commercial lobster fishery.

Thank you

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 12, 2013
Status: Pending_Post
Tracking No. 1jx-87kd-452q
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0242
Comment from Bro Cote

Submitter Information

Name: Bro Cote

General Comment

These are my comments on Atlantic Large Whale DEIS and the proposed rule;
Provision 1
minimum of 20 traps per trawl
I have no problem with this provision in how it would or would not effect area 3 lobster fishing

Provision 2
Increase vertical line markings
We presently mark our end gear with one marking on the bouy line. More markings at sea are impractical and a burden with the already burdensome sinking groundline rules which are both problematic and extremely costly. Remarking endlines with more markings is just a witch hunt that will become another burden on industry.

Provision 3
Seasonal closure NOV-Jan encompassing Jordan Basin
I am opposed to this provision. Never discussed in depth at TRT and was not justified in the NOAA documents. The data presented did not show a high level of co-occurence of gear and lobsters in that area. The data is very limited and who can verify its accuracy? Fishing levels were in accurate for the Jordan Basin area. Area 3 continues to decrease our trap numbers with anotherr 25% reduction in traps levels over the next 5 years. Trap reductions continue to be the most effective way of limiting interaction and protecting whales.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 11, 2013
Status: Pending_Post
Tracking No. 1jx-87jx-u9va
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0240
Comment from Matt Accardi

Submitter Information

Name: Matt Accardi
Address: United States,

General Comment

Environmental Law Society
Vermont Law School
164 Chelsea Street, PO Box 96
South Royalton, VT 05068

September 11, 2013

submitted electronically at: http://www.regulations.gov

Re: NOAA-NMFS-2013-0095

To whom it may concern:

Thank you for the opportunity to provide comment on the Draft Environmental Impact Statement and the Proposed Rule for the Atlantic Large Whale Take Reduction Plan revisions. A tremendous amount of time and effort is required whenever an agency accepts public comments and we commend you for your dedication to the process.

This letter has been prepared by members of the Environmental Law Society at Vermont Law School. Our connections to the Atlantic Large Whale Take Reduction Plan revisions vary. We are concerned for the health and wellbeing of the Atlantic whales these revisions will impact. These species greatly influence our fisheries and their wellbeing will undoubtedly impact the recreational and economic value of our oceans. And for these reasons we offer our comments in hopes of protecting the Atlantic whale populations. (This comment was prepared by individual students and should not be taken as a position, opinion, or endorsement by Vermont Law School.)

After reviewing the Draft Environmental Impact Statement, we agree that Alternative 5, as specified

throughout the document as the preferred alternative, is in fact the best alternative proposed thus far. However, we believe Alternative 5 can be improved.

NOAA's own research shows that the number of injuries and mortalities attributed to commercial fishing are above sustainable levels. Yet, the National Marine Fisheries Service proposes to exempt both Maine and New Hampshire from complying with risk reduction measures. Since we cannot control the migration of the concerned species, compliance with risk reduction measures must be implemented in all coastal states. It is no secret that fisheries are shifting north due to the impacts of global climate change. Given this scenario, it is imperative that the two most northern Atlantic coastal states risk reductions measures are enforced. In addition, absent the enforcement of risk reduction measures in Maine and New Hampshire, additional species, specifically sea turtles, become susceptible to the dangers brought on my long line fishing practices.

Our fisheries must be protected. Maintaining the natural balance of species in our waters is essential to protecting our fisheries. Unsustainable fishing practices must be regulated to the fullest extent possible. Enforcement of the risk reduction measures provided in the Atlantic Large Whale Take Reduction Plan must be inclusive of all gear types and categories. Application of the revised plan should not be limited to only some states as migrating marine species do not conform to our state boundaries.

Sincerely,

/s/Matt Accardi

Matt Accardi
Chair, Environmental Law Society at Vermont Law School

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 11, 2013
Status: Pending_Post
Tracking No. 1jx-87jv-orja
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0239
Comment from Janice McLaughlin

Submitter Information

Name: Janice McLaughlin
Address: United States,

General Comment

Please not only reduce, but *prevent* fatal entanglements. I support Alternative#5 with no state exemptions.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l9-l2ae
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0280
Comment from Margaret Champion

Submitter Information

Name: Margaret Champion
Address:
6902 Moorfield Drive
Cincinnati, OH, 45230
Email: Margaret@Championdiver.com
Phone: 5132324633

General Comment

I am a SCUBA diver and care about the ocean and all creatures in it. I have had the rare privilege of seeing magnificent animals such as whale sharks and whales in their natural habitat. I have also witnessed horrible things due to human actions such as trash in the oceans and, especially, fishing nets entangling sea life such as turtles.

As whales become increasingly scarce, I believe it is crucial that we do all we can to reduce entanglements of all whales. They need our protection. Please make the proposed protections more comprehensive of gear types with comprehensive marking of gear and locations.

I prefer Alternative 5 for protection and urge that Maine and New Hampshire ocean waters NOT be exempted. Please also include gillnets which have proven to be so devastating. Your own research has shown that without major efforts, the mortality rate for these whales is unsustainable for species survival.

We are all part of the web of life, including sea life. Although commercial fishing is important, there is more to life than money. As a 19th century Cree Indian once said, "Only when the last tree has died and the last river has been poisoned and the last fish has been caught, will we realize that we cannot eat money." Please don't allow the last whales to be caught by avoidable entanglements.

Thank you for your consideration,

Margaret Champion
Professional Association of Dive Instructors
#191219

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l8-h3yk
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0265
Comment from Jan Weisel

Submitter Information

Name: Jan Weisel
Address: United States,

General Comment

Please help reduce entanglements of right and humpback whales by supporting 'Alternative #5' - the preferred proposed plan to reduce fatal entanglements.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l9-97sy
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0309
Comment from Sharlene White

Submitter Information

Name: Sharlene White
Address:
Oceanside, CA,

General Comment

I love whales and dolphins and believe they should be protected. They are the most intelligent creatures on our planet and are extremely important for our ecology. I am very upset that these precious resources are being harmed. I would prefer NOAA's alternative 5 and I definitely do not want gillnets to be included nor Maine and New Hampshire waters exempted.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l9-e7y9
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0308
Comment from Virginia Bennett

Submitter Information

Name: Virginia Bennett
Address:
1201 Wilder Ave.
#1704
Honolulu, HI, 96822
Email: vbennett@hawaii.edu
Phone: 808-956-4165

General Comment

I would like to express my support for the NOAA's proposed rule pertaining to the "large whale take reduction plan". Actually, If I had my "druthers", I'd like to see large-scale commercial fishing abolished all together!! Soon all of our oceans will be depleted beyond repair/comeback!!

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l9-at6g
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0306
Comment from Izabella Dabrowski

Submitter Information

Name: Izabella Dabrowski
Address:
11805 Eubank Dr
Austin, TX, 78758
Email: izka_d@yahoo.com
Phone: 512-363-5502

General Comment

Dear Sirs,

I am an avid Whale and Dolphin watcher and photographer and have taken many trips just for viewing these majestic creatures. I believe it is very important that they be protected from human endangerment, especially something so easily preventable as entanglements in lobster and crabbing lines.

I support 'Alternative #5', including gillnets as a way to prevent fatal entanglements. I also do not believe in allowing the waters of Maine and New Hampshire to be exempted. I feel this is the only way to ensure some needed protection for these animals from unfortunate human interference in their lives.

Thank you for allowing me a voice in this matter.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l9-edk9
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0305
Comment from Susanne Hesse & Doug Dyer

Submitter Information

Name: Susanne Hesse & Doug Dyer
Address:
Alachua, FL,

General Comment

Please support alternative #5 the preferred proposed plan to reduce net entanglements, including gillnets while not allowing the waters of Maine & New Hampshire to be exempted. We need to do more to protect large whales.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l9-rdnm
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0302
Comment from Beverly Foster

Submitter Information

Name: Beverly Foster
Address:
Wayne, PA, 19087

General Comment

I am a very serious respecter of all nonhumans and, though I prefer Alternative 5, it is totally inadequate. Our species has extinguished thousands of nonhuman species in a very short time, species who took millions of years to evolve.

Please DO NOT exclude Maine and NH waters from this regulation. Include ALL waters off the Atlantic coast and definitely INCLUDE gillnets. Gillnets should be outlawed period.

This is a moral imperative: SAVE all cetaceans. Blue whales are already beyond our help. We have extinguished the largest mammal ever to evolve on earth. Let's save the others in the oceans.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l9-ab1r
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0300
Comment from Bill Roseberry

Submitter Information

Name: Bill Roseberry
Address:
2151 Lincoln Hwy Apt G10
Levittown, PA, 19056
Email: wlroseberry@yahoo.com

General Comment

I ask that the NOAA protect the whales. I fully support Alternative #5. Maine and New Hampshire waters absolutely should not be exempted. Gillnets should also included. Whales and other sea creatures should have the rights and protections that would keep them safe for future generations to love. Whale conservation is not not just a question of morals but also economics and your own research has found that the injuries and deaths caused by these methods is not sustainable. Many people derive great pleasure and a connection to the world through their exposure to whales, dolphins and porpoises playing in their natural habitat. This is what needs to be sustained. Thank you.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l9-gi0l
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0293
Comment from Donna Doherty

Submitter Information

Name: Donna Doherty
Address:
9 Proctor St.
Ashburnham, MA, 01430

General Comment

I am an animal lover and love all species including marine life. Whales are so special to me. They have proven that they have deep feelings and are such special creatures. I prefer alternative #5. I don't want Maine and New Hampshire waters to be exempt and I want gillnets included. I care about the oceans and I want to help protect this species. Your own research shows that the number of serious injuries and mortalities for right whales is nearly double sustainable limits and more than double for humpback whales. Please help protect them!

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87l9-miu8
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0290
Comment from Barbara Orr

Submitter Information

Name: Barbara Orr
Address: United States,

General Comment

I prefer alternative 5 and I do not want any exemptions. Gillnets must be included. These animals are being killed because of improper fishing methods that endanger larger mammals. It is morally wrong to allow these deaths and injuries to continue because of human lack of caring. Profit and greed seem to lead our decisions and it is destroying our planet. Please consider implementing strict rules and regulations for all commercial fishing operations. Environmental balance is essential, and we must do a much better job of reigning in commercial fishing operations before it is too late.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87lb-ul5z
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0332
Comment from Dave and Rita Cross

Submitter Information

Name: Dave and Rita Cross
Address:
116 Schooner Dr.
Lakeway, TX, 78738
Email: rexellen08@yahoo.com
Phone: 512-755-1578

General Comment

Dear Decision Makers,

We respect and love our whales and support the work of Whale and Dolphin Conservation! These right and humpback whales get entangled in fishing nets and are injured and often die because of it! Such a needless tragedy!

We believe that there should be restrictions placed on more gear types, not just the risk-prone lines that connect lobster and crab pots to surface buoys and a more complete marking strategy to identify the types of gear and where they were set originally. We do prefer Alternative 5 and want gillnets included. Maine and New Hamshire should follow the same regualtions as other areas!

We truly care about our oceans and their many species! We just cannot allow any of these animals to suffer, die or become extinct! The mortality of these whales has gotten out of hand; it is a dangerous situation which demands protections very soon!

We urge you to do the right thing for these animals and institute serious protections to keep them with us now and into the future!

Kind regards,

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87la-rwmo
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0328
Comment from George Homanich

Submitter Information

Name: George Homanich
Address: United States,

General Comment

I support alternative#5. No exemptions for Maine or New Hampshire. No gillnets.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87la-bmrk
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0327
Comment from Saran Kirschbaum

Submitter Information

Name: Saran Kirschbaum
Address:
1710 Bagley Ave.
Los Angeles, CA, 9005
Email: sarank@mac.com

General Comment

Gill nets need to be banned because they kill marine life unnecessarily. Unfortunately, even after they sink to the ocean floor, they continue to kill. This is the 21st century, previous ways of doing things are no longer viable. Marine life is being affected by warmer waters, acidification of oceans, and a variety of many actions taken for profits sake. Nature cares about balance, doesn't play politics and will no longer be ignored much to our dismay. Alternative 5 needs to include Maine and New Hampshire waters too.

I learned to care about whales in San Ignacio, where they have no fear of humans and even bring their young to have their backs scratched. Please protect all whale species so they may survive as they have for millions of years.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87la-5qm8
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0325
Comment from Georgia Brewer

Submitter Information

Name: Georgia Brewer
Address:
5518 Ventura Canyon Avenue
Sherman Oaks, 91401-5228
Email: georgiabrewer@gmail.com

General Comment

I am a US Citizen and taxpayer, and I support 'Alternative #5' to reduce fatal entanglements

Further, I oppose any plan to exempt the waters of Maine and New Hampshire.

Lastly, I want gillnets included in entanglement reduction strategies.

I care very deeply about preserving marine mammals and am sick and tired of commercial fishing operations' sloppy and greedy thoughtlessness.

Thank you.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87la-qbox
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0323
Comment from Nicole Weber

Submitter Information

Name: Nicole Weber
Address: United States,

General Comment

I am a supported of whales and other sea mammals and I prefer alternative #5.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87la-7x33
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0322
Comment from Paul Lerman

Submitter Information

Name: Paul Lerman
Address: United States,

General Comment

Alternative 5 is the better choice - gillnets should be included and PLEASE do not exempt Maine and New Hampshire waters.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87la-jwg4
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0315
Comment from danielle arfin

Submitter Information

Name: danielle arfin
Address: United States,

General Comment

As an animal lover, I am writing to let you know that I prefer Alternative 5, that I do not want Maine or New Hampshire waters exempted, and that I want gillnets to be included. This rule is important to me because I want to protect right whales, I care about the oceans, and I want to help save this species. Your own research shows that the number of serious injuries and mortalities for right whales is nearly double sustainable limits and more than double the sustainable limits for humpback whales. Protecting them will help them survive.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87lc-joli
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0351
Comment from Sarah Hafer

Submitter Information

Name: Sarah Hafer

General Comment

Please consider to keep waters non-exempted, please consider Alternative 5 plan, and include gillnets.

I am a huge nature lover for ocean as well as land pieces as i am always amazed at how nature could really support our living and they give out so much beauty. I appreciate the nature profoundly thus we should really minimize any damage to them.

Please remember that your own research shows that the number of serious injuires and mortalities for right whales is nearly double sustainable limits and more than double the sustainable limits for humpback whales. Please realize that it is simple common for us to need to protect our living species on Earth.

Sarah Hafer
Sacramento, CA

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87lc-ykc8
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0348
Comment from Kelly O'Donnell

Submitter Information

Name: Kelly O'Donnell
Address: United States,

General Comment

I am writing to express support for Alternative 5. Please do not exempt Maine or New Hampshire waters. Finally, please include gillnets. It is critical to these magnificent creatures' survival that we reduce entanglement.
Thank you for your time.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87lc-haou
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0347
Comment from Heather Murphy

Submitter Information

Name: Heather Murphy
Address:
2623 Waterview Dr.
Eustis, 32726
Email: HMurphy@finsandfluke.org
Phone: 352-455-9134

General Comment

I have been a whale lover all my life and I'm a board member of Fins and Fluke, an NPO that works for the betterment of our oceans. I am very concerned about the human impact that continues to devastate the population of large whales, particularly the Right Whale population. Right Whales are already endangered and there needs to be continued strict laws in place to help protect them before they are gone for good.

I am requesting continued support of "Alternative #5" to reduce fatal entanglements. I'm also asking that you include the waters of Maine and New Hampshire in the ruling. Gillnets need to be included in the entanglement reduction strategies as well. These are a few of the many things that could protect these vulnerable whale populations from further endangered status. Without protection put into place, the large whale species are not able to reproduce at a rate to continue it's current population or expand to numbers more stable.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87lf-uj14
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0382
Comment from Patricia Amadio

Submitter Information

Name: Patricia Amadio
Address: United States,

General Comment

I am a physician and a person who thinks that marine mammals are beautiful, intelligent, and should be protected.
I want to tell the NOAA that vertical lines in the water, which entangle whales such as pilot whales and humpback whales,
should be prohibited, including in the waters of Maine and New Hampshire. Gill nets should also be prohibited, as they entrap and drown cetaceans. NOAA research has shown that there are more injuries being sustained by these species than are sustainable.
This is particularly significant and important to me because of our 12 year old daughter. She wants to be a marine biologist, and because of her passion for these creatures, our family has gone on whale watches and seen these amazing whales up close. Please protect them to help these species survive.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87lf-x7oh
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0379
Comment from jeffrey sanders

Submitter Information

Name: jeffrey sanders
Address:
1577 winnetka rd
glenview, IL, 60025
Email: yellowstart5@yahoo.com

General Comment

I prefer alternative 5 and no exemptions for maine and new Hampshire.
also, gillnets should be included.

Jeffrey Sanders

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 13, 2013
Status: Pending_Post
Tracking No. 1jx-87lf-lj80
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0378
Comment from Barbara Smith

Submitter Information

Name: Barbara Smith
Address: United States,

General Comment

I support plan #5, which would prevent entanglement and potential death of Right Whales.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 14, 2013
Status: Pending_Post
Tracking No. 1jx-87lu-vq4j
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0412
Comment from Dianne Douglas

Submitter Information

Name: Dianne Douglas
Address:
Phoenix, AZ,

General Comment

We need to protect large whales! I prefer alternative #5. I do not want Maine or New Hampshire waters exempted and want gillnets to be included. I love nature and am a whale watcher when I get the opportunity to get to the coast.

NOAA is proposing to restrict the use of risk-prone lines that connect lobster and crab pots to surface buoys, but they need to include more gear types and a more comprehensive marking strategy to identify the type of gear and where it was originally set.

NOAA own research shows tht the number of serious injuries and mortalities for right whates is nearly doubled sustainable limits and more than double the sustainable liits for humpback whales or that protecting them will help them survive.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 14, 2013
Status: Pending_Post
Tracking No. 1jx-87lq-ye0q
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0398
Comment from Eileen Hennessy

Submitter Information

Name: Eileen Hennessy
Address:
Melrose, MA,

General Comment

As an American citizen and an advocate for the protection of endangered whales in our oceans, I am submitting my comments for NOAA's proposed rule on Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan.

As whales are endangered, I feel it is vital to take any steps necessary to ensure their survival for future generations. To this end, it is absolutely essential to reduce entanglements of North Atlantic right and humpback whales. I strongly support the proposal to restrict the harmful use of vertical fishing lines in the ocean. According to NOAA's own research, the incidents of serious injuries for right whales is nearly double sustainable limits and more than double the sustainable limits for humpback whales. These statistics should be a red flag that more needs to be done to protect these gentle giants from anything that will further endanger their already precarious status. Along with the reduction of vertical lines, gillnets should also be included and Maine and New Hampshire waters must not be exempted from this proposal. For these reasons, I prefer Alternative 5.

Sound science and a sincere determination to preserve and protect our oceans' struggling whale species is of paramount importance, if these magnificent creatures are to have a chance to survive into the future. This issue matters greatly to me as someday I wish the experience of viewing these awesome beings in their natural habitat for myself and my children and this can only happen with the vigilant protection of endangered whales from dangerous, life-threatening fishing lines.

Thank you for your serious consideration of my comments on this most urgent issue.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 14, 2013
Status: Pending_Post
Tracking No. 1jx-87lo-yyvk
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0396
Comment from Karen Ziomek Vayda

Submitter Information

Name: Karen Ziomek Vayda
Address:
4 Donna Marie Way
Southampton, MA, 01073
Email: kziovay@yahoo.com
Phone: 4135277795

General Comment

To Whom It May Concern:

I email you today as very concerned citizen and resident of Massachusetts. Please support Alternative 5, the proposed plan to reduce deadly entanglements of marine mammals. Please include more gear types and a more comprehensive marking strategy to identify the type of gear and where it was originally set. Gillnets should be included in an entanglement reduction strategy. Finally the waters of Maine and New Hampshire should absolutely be included in the plan!

Particularly concerning to me is the number of hits on right whales which research shows are not reproducing fast enough to sustain them. Let's take serious action to do something about this before it is too late!
Please help reduce entanglements of all right and humpback whales!
Thank you for your attention to this very important matter.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 14, 2013
Status: Pending_Post
Tracking No. 1jx-87m1-hs92
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0423
Comment from John Burridge

Submitter Information

Name: John Burridge
Address:
PO Box 14444
East Providence, RI, 02914
Email: burridge@cox.net

General Comment

I wish to see the strictest possible regulations against any taking of marine mammals incidental to commercial fishing operations, especially protections for any whales, and, as a resident, including all New England states

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 14, 2013
Status: Pending_Post
Tracking No. 1jx-87m0-rvfo
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0421
Comment from Evan Craig

Submitter Information

Name: Evan Craig
Address:
116 Hamilton Place
Vernon Hills, IL, 60061
Email: evan.craig@illinois.sierraclub.org

General Comment

I am a wildlife enthusiast and recreational sailor. I have boated and snorkeled on both the Atlantic and Pacific oceans, and have not yet seen a whale. I hope to someday, and I am writing to you to ask you to protect them so that they can recover so that there will be plenty for a long-term viable population, and plenty for people to see for generations to come.

I prefer alternative 5, to reduce entanglements of right and humpback whales with buoy lines. But please go beyond this, and write measures to protect these whales from all gear left in the water, and initiate a marking policy so that gear that kills whales can be traced back to its source.

Whales can't read, so they won't know to stay away from exempted waters until it's too late, and they die from more entanglements. So please do not exempt the waters of Maine or New Hampshire.

But you don't need me to tell you. Your own data shows that the injury and mortality of these species caused by entanglements is double the sustainable limits. We are an advanced society because we put science to work, not by ignoring it. I've always thought that the real definition of sin is to know the right thing to do to protect others, but choose to do the wrong thing out of selfishness and for short term gain. Let's do the right thing, and protect these magnificent, intelligent, gentle creatures for future generations.

Alternative 1 is the status quo, which, knowing that lines and entanglements occur together, is irresponsible.

Alternative 2, with more traps per trawl, will kill more bottom life. That sounds bad.

Alternative 3 does too.

Alternative 4 is more of the same. We can fuel an airplane in midflight. Can't we figure out a way to pick up lobster pots without lines to the surface that act as snares for whales?

Alternative 5 seems to combine the best of 2,3 and 4, but includes exemptions that are unwise.

Alternative 6 sounds less protective than 5, with fewer closures. Let’s protect the whales with closures until we find a better way.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 14, 2013
Status: Pending_Post
Tracking No. 1jx-87lx-oi76
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0416
Comment from Drew Martin

Submitter Information

Name: Drew Martin
Address: United States,

General Comment

I am writing to state that I prefer alternative 5. It is important that you do not exclude Maine or New Hampshire waters. They need to be included. I wish to see gill nets included in the regulation.

I enjoy seeing whales in the wild. Part of my travel budget is to visit places where whales are prevalent. I am very concerned that fishing gear is resulting in a number of deaths of Right Whales. Gill nets can cause whales to die. Fishing methods need to be established and used in ways that do not harm whales.

Current damage and death to both Right Whales and Humpback Whales is beyond sustainable limits. We need to protect these species.

Please establish strong protections for all species from fishing gear, in particular whales. I am also concerned about damage to sea turtles and dolphins. Fishing practises need to be done in a sustainable manner so that future generations may enjoy the same wild animals that we enjoy today.

To sum up. I support alternative 5 and do not support the exclusion of Main or New Hampshire Waters. I support the inclusion of gill nets in the regulation.

Thank you

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 16, 2013
Status: Pending_Post
Tracking No. 1jx-87n9-julh
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0462
Comment from Edward Dorson

Submitter Information

Name: Edward Dorson
Address: United States,

Duplicate comment submitted by multiple people

General Comment

Comment to the National Oceanic and Atmospheric Administration's (NOAA's) Proposed Rule: Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

I'm an advocate for the strict implementation of the mandates set forth in the U.S. Marine Mammal Protection Act, free of the increasing exemptions that are eroding this benchmark legislation.

The intent of the U.S. Marine Mammal Protection Act sould include preventing endangered right whale and threatened humpback whale populations from deadly line and net entanglements.

I support Alternative No. 5, the proposed plan to reduce cetacean entanglements. I do not support allowing the waters of Maine and New Hampshire to be exempted, including the use of gillnets.

I urge NOAA to take all necessary measures to reduce the risk of entanglement to these whale species from vertical line, to include additional areas and gear types not currently considered and to develop a viable monitoring and enforcement plan.

Thank you for your consideration.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 16, 2013
Status: Pending_Post
Tracking No. 1jx-87n6-9sov
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0454
Comment from Sheri Terry

Submitter Information

Name: Sheri Terry
Address:
104 NW Delaware
Bend, OR, 97701
Email: haleiwasheri@gmail.com
Phone: 458-206-9929

General Comment

My name is Sheri Terry and I prefer alternative 5. I do not want marine or New Hampshire waters exempt, and gillnets have to be included. I love and value all marine life, whales, dolphins coral reefs and I support WDC, Surf Rider foundation, SAS & the American Reef Coalition. I surf, sail and snorkel. The beaches and oceans should be protected and valued for our future generations.

Your own research shows that sonar is very dangerous the ocean life, whales, dolphins and all other oceanic mammals. You've indicated a number of serious injuries and mass beaching's and deaths.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 16, 2013
Status: Pending_Post
Tracking No. 1jx-87n5-k2m6
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0449
Comment from Emily Ryane Moss

Submitter Information

Name: Emily Ryane Moss
Address: United States,

General Comment

I work in the marine conservation field and recognize the complexities of creating and implementing policies regarding animal welfare when there is a potential negative impact for human industry. I feel strongly there is a compromise to be found and I believe in this case Alternative 5 is the best option.

As the North Atlantic right whale is critically endangered and receives consideration under the ESA and MMPA I disagree with any exceptions in Maine and New Hampshire waters; right whales are known to migrate and feed in these areas and will continue to be at risk for fatal injury if these regulations are not implemented in those states.

Additionally, a thorough gear marking strategy should be put in place to better track and manage entanglement issues and help create more specific, effective policies in the future. This will benefit conservation efforts as well as preventing widespread and unnecessary regulations on commercial fisheries.

Perhaps the most important factor that is not currently included in the proposed rule is the regulation of gillnets. This type of gear is known to be harmful to many species of marine animals (whales, dolphins, sharks and seals) and should not be omitted from regulation measures.

Thank you for your consideration and your continued efforts to preserve a healthy marine ecosystem,
Emily Ryane Moss

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 16, 2013
Status: Pending_Post
Tracking No. 1jx-87n3-h59c
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0447
Comment from David Orr

Submitter Information

Name: David Orr
Address:
1564 W Cedar St
Fayetteville, AR, 72703

General Comment

Hello,

My name is David Orr and I am a biology teacher. Protecting whales is important to me because I gain a lot of satisfaction knowing that we are saving these creatures from careless injury and death at the hands of careless humans. My students find whales interesting and compelling. Students become motivated to study biology by learning about charismatic species like whales.

I strongly support Alternative 5, as the most protective of the alternatives proposed by NOAA. I oppose exemption for any state, as I understand Maine and New Hampshire are requesting such exemption. Finally, I request that gillnets be included in any entanglement reduction strategy adopted.

Thank you.

David Orr
1564 W Cedar St
Fayetteville AR

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 16, 2013
Status: Pending_Post
Tracking No. 1jx-87n2-154i
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0445
Comment from Timothy Schacht

Submitter Information

Name: Timothy Schacht
Address:
1330 Whittier Road
Grosse Pointe Park, 48230
Email: drtim@speakeasy.net

General Comment

Re: Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan.

I am a veterinarian who has been working to preserve cetaceans for more than 40 years. Even without widespread commercial whaling, the impact of human behavior on whales is considerable. NOAA studies show that right and humpback whale populations are injured or killed a twice the sustainable rate. Therefore, I support Alternative 5 to restrict the use of risk-prone lines that go from the lobster and crab pots to the surface buoys but they need to include more gear types (e.g., gill nets) and a more comprehensive marking strategy to identify the kind of gear and where it was set. I oppose the exemption of the waters of the States of Maine and New Hampshire from these rules.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 15, 2013
Status: Pending_Post
Tracking No. 1jx-87ml-xase
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0439
Comment from Marilyn Berling

Submitter Information

Name: Marilyn Berling
Address:
9114 Woodbridge Court
Indianapolis, IN, 46260
Email: mberling@sbcglobal.net

General Comment

We prefer Alternative #5. We definitely believe that New Hampshire and Maine waters must not be excluded. Gillnets should be included.
We are supporters of WDC and we have worked on animal rights all our lives.
Diversity of species is critically important to all of us. Most informed persons know this very well. The protection of Right Whales and the oceans is a number one concern and issue for us.
We have learned that the NOAA research demonstrates the high number of mortalities for Right Whales, mortalities which almost double the sustainable limits, and more than double the sustainable limits for Humpback Whales.
It is very confusing to us why there is any question as to choosing Alternative #5.

If more citizens were aware of this issue, you would receive hundreds of comments expressing our same views.
This issue has had very little publicity. Regrettable.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 16, 2013
Status: Pending_Post
Tracking No. 1jx-87nf-mw6c
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0468
Comment from Lori Caron

Submitter Information

Name: Lori Caron

General Comment

Please save the whales AND respect the fisherman. The Massachusetts Lobsterman has made a great effort to date to reengineer their gear to minimize whale entanglements and has shown a willingness to support the dis-entanglement efforts should the need arise. We have visibly seen a double in size of the right whale population. Science used here seems flawed. Please consider Alternative 1"Status Quo" as the only option and validate current measurements and science for accuracy.

PUBLIC SUBMISSION

As of: September 19, 2013
Received: September 16, 2013
Status: Pending_Post
Tracking No. 1jx-87nb-jgy2
Comments Due: September 16, 2013
Submission Type: Web

Docket: NOAA-NMFS-2013-0095
Amendment to the Atlantic Large Whale Take Reduction Plan

Comment On: NOAA-NMFS-2013-0095-0001
Taking of Marine Mammals Incidental to Commercial Fishing Operations: Atlantic Large Whale Take Reduction Plan

Document: NOAA-NMFS-2013-0095-DRAFT-0465
Comment from Jacqueline Bort

Submitter Information

Name: Jacqueline Bort

General Comment

I am writing as a concerned citizen with a background in marine mammal biology to show my support for Alternative 5 regarding the taking of marine mammals incidental to commercial fishing operations: Atlantic Large Whale Take Reduction Plan. I believe that the waters of Maine and New Hampshire should not be exempt, and I believe gillnets should be included. I also highly support the closing of Jordan Basin area from November 1 through January 31, as my masters research has shown that a high number of right whales and humpback whales frequent that area during those months.

RECORD OF DECISION

FINAL ENVIRONMENTAL IMPACT STATEMENT

AMENDMENT TO THE
ATLANTIC LARGE WHALE TAKE REDUCTION PLAN
VERTICAL LINE RULE

National Marine Fisheries Service
Greater Atlantic Regional Fisheries Office

This document comprises NOAA Fisheries Service's (NMFS) Record of Decision (ROD) for amendments to the Atlantic Large Whale Take Reduction Plan (Plan) as required by the National Environmental Policy Act (NEPA). The ROD is based on and incorporates, as described below, the Final Environmental Impact Statement (FEIS) and all other decision and analytical documents prepared for this action.

Background

In response to the continued serious injury and mortality of large whales from entanglement in commercial fishing gear, NMFS determined that additional modifications to the Plan were warranted. In April 2003, NMFS convened a meeting of the Atlantic Large Whale Take Reduction Team (Team) to develop options to reduce the risk of serious injury and mortality of right, humpback, and fin whales from entanglement in commercial fishing gear. Although the Team did not reach consensus on any recommendations, they did reach consensus on two overriding principles for addressing interactions between large whale and commercial fisheries: 1) reduce the profile of all groundlines; and 2) reduce risk associated with vertical lines (or buoy lines).

At that time, the Team and NMFS agreed to focus on developing options to reduce the profile of all groundlines, as we were not able to identify a viable option for further reducing the risk associated with vertical lines. NMFS committed to work with the Team to address vertical lines through future rulemaking. Consequently, following implementation of the sinking ground line rule (73 FR 51228, October 2, 2008), the Team turned its focus to vertical line risk reduction.

At its 2009 meeting, the Team agreed on a schedule to develop a management approach to reduce the risk of serious injury and mortality due to vertical lines. NMFS committed to publishing a final rule to address vertical line entanglement by 2014. Based on input from the Team, NMFS changed its management approach for addressing vertical line entanglements by

switching from a broad-base management strategy to a more precise high impact area strategy. To assist the Team in the development of options, NMFS developed a new Vertical Line Model. The model utilizes fishing gear characterization data and whale sightings per unit effort (SPUE) data to determine the co-occurrence of fishing gear density and whale density. The Team's Northeast Subgroup met in November 2010 and the Mid-Atlantic/Southeast Subgroup met in April 2011 to review the model and consider its implications for an overall management strategy to address vertical line entanglements. The Team agreed that NMFS should use the model to determine what areas to consider for management and develop possible options to address fishery interactions with large whales.

Consequently, NMFS published a Notice of Intent (NOI) in the *Federal Register* to announce the agency's intent to prepare an EIS, which would analyze the impacts of alternatives for amending the Plan (76 FR 64654, June 14, 2011). In addition, the NOI announced a 90 day public comment period and that NMFS would be holding public scoping meetings along the east coast to solicit comments on the range of issues to be considered during the preparation of an Environmental Impact Statement. Proposals from the Team and subsequent subgroup meetings were used to develop a scoping document which NMFS made available to the public during 16 scoping meetings held in July and August 2011. NMFS considered the public comments provided during scoping and comments submitted to NMFS during the public scoping comment period. NMFS utilized these comments as well as input from the Team during the development of management options for amending the Plan, which were published in a Draft Environmental Impact Statement (DEIS) (July 2013) and proposed rule (78 FR 42654, July 16, 2013). These alternatives were intended to further reduce the risk of serious injury and mortality to large whales from entanglements in commercial fishing gear and minimize adverse impacts if entanglements occur. NMFS held 16 public hearings and accepted comments on the DEIS and proposed rule during a 60-day public comment period ending September 16, 2013.

Alternatives for Amending the Plan

The DEIS analyzed and considered several other alternatives to reduce the risk of serious injury and mortality to large whales from entanglements in commercial trap/pot and gillnet fishing gear. These are summarized below.

- **Alternative 1 (No Action)**: Under Alternative 1, NMFS would continue with the status quo, i.e., the baseline set of Plan requirements currently in place.

- **Alternative 2**: NMFS would implement new gear marking restrictions coastwide, require a minimum number of traps per trawl, and require the use of weaker weak links and/or vertical lines of lower breaking strength. This alternative would also implement a new management area in the Southeast Region.

- **Alternative 3**: NMFS would implement all of the requirements of Alternative 2, except the minimum number of traps per trawl required in Maine would differ. Under this alternative NMFS proposes a closure in the Cape Cod Bay from

February 1 through April 30. In addition, New Hampshire state waters would be exempt from the Plan's requirements.

- **Alternative 4**: NMFS would implement all of the requirements of Alternative 2. In addition, NMFS would propose three closures: (1) Jordan Basin from November 1 through January 31; (2) Jeffreys Ledge from October 1 through January 31; and (3) Massachusetts Restricted Area #1 (including a portion of the Outer Cape and abutting the Great South Channel) from January 1 through April 30.

- **Alternative 5:** Alternative 5 is a combination of Alternatives 2, 3, and 4. The minimum traps per trawl for Maine would mimic what is required under alternative 3; traps per trawl in all other areas would mimic what is required under Alternative 2. New Hampshire state waters would be exempt under Alternative 5. The closures proposed under Alternative 4 remain in place under Alternative 5.

- **Alternative 6 Draft:** NMFS would implement all of the requirements of Alternative 5 with a few exceptions. A minimum of two traps per trawl would be required in Massachusetts state waters instead of three traps per trawl. Also, only one closure would be implemented (Massachusetts Restricted Area #2). From January 1 through April 30 Cape Cod Bay and the Outer Cape would be closed to fishing.

For a description of the alternatives, please see Chapter 3 of the FEIS. For a full analysis of these alternatives, please see the corresponding sections of the FEIS.

<u>Approved Amendments to the Plan (Alternative 6 Final Preferred in the FEIS)</u>

Amongst other requirements, NMFS is approving: (1) Minimum number of traps per trawl in specific areas; (2) the addition of a trap/pot seasonal closure; (3) an expanded gear marking scheme; and (4) gear modifications in a new trap/pot area in the Southeast region.

In response to comments received on the DEIS, NMFS formulated a final preferred alternative that builds on one of the alternatives in the DEIS (i.e. Alternative 6 Draft). The preferred alternative would implement all of the requirements of Alternative 6 with a few exceptions. A Minimum of two traps per trawl would be required in both Massachusetts and Rhode Island state waters instead of three traps per trawl. New Hampshire state waters would only be exempt from the proposed minimum number of traps per trawl requirement only. All other Plan requirements would apply. All exempted state waters would not be required to gear mark as previously proposed. The final rule allows for 'pocket waters' in Maine to fish a minimum of two traps per trawl instead of three and creates a ¼ mile buffer around three inhabited islands in Maine that would be allowed to continue traditional fishing practices.

For a description of the approved action, please see Chapter 3 of the FEIS. For a full analysis of this action, please see the corresponding sections of the FEIS.

Factors Considered in Making a Decision on the Final Action

The Council on Environmental Quality (CEQ) NEPA implementing regulations require agencies, in addition to stating the decision made, to discuss how the decision was affected by the preferences among alternatives and to identify and discuss all factors that led to the decision. In making a decision regarding approval of the Plan amendment, NMFS considered the analysis of alternatives contained within the FEIS, associated environmental impacts, the extent to which the impacts could be mitigated, and the agency's consideration of the objectives of the final action as they relate to the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA). NMFS has also considered the public and agency comments received during the NEPA and proposed rule comment periods. NMFS analyzed the conservation benefit of the action versus the costs to Industry both economically and from a safety standpoint.

Under the MMPA, NMFS is required to establish and convene take reduction teams to develop and implement take reduction plans for reducing the levels of mortality and serious injury of strategic stocks of marine mammals in Category I and II fisheries (i.e., those with frequent or occasional mortality and serious injury of marine mammals, respectively). The MMPA defines a strategic stock as a marine mammal stock: (1) for which the level of direct human-caused mortality exceeds the potential biological removal (PBR) level; (2) which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; or (3) which is listed as a threatened or endangered species under the ESA or as depleted under the MMPA. Northern right whales, humpback whales, and fin whales are strategic stocks because they are listed as endangered under the ESA; therefore, because these stocks interact with Category I and II fisheries, a take reduction plan is required to assist in the recovery of these large whale species. The PBR, as defined by the MMPA, means the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. Pursuant to Section 118 of the MMPA, NMFS is required to assemble a take reduction team composed of representatives from the fishing industry, fishery management councils, state and Federal resource management agencies, the scientific community, and conservation groups. In general, the purpose of the take reduction team is to provide recommendations and assist NMFS in developing management measures for including in a take reduction plan. After a plan is implemented, the take reduction team provides NMFS with recommendations on implementation activities, feedback on the effectiveness of current management measures, and strategies for modifying the plan as necessary.

With respect to the ESA, Section 7 requires Federal agencies conducting, authorizing, or funding activities that may affect threatened or endangered species to ensure that those impacts do not jeopardize the continued existence of listed species or result in the destruction or adverse modification of habitat determined to be critical. A number of Biological Opinions on fisheries issued in 2001 concluded that continued operation of these fisheries was likely to jeopardize the continued existence of ESA-listed right whales as a result of entanglement in pot/trap gear used in the fishery. The RPA in these Biological Opinions were implemented as part of the Plan. Following implementation of these measures, consultation on these fisheries was reinitiated.

These consultations, which concluded in October 2010, evaluated the effect of the proposed action, which included the measures under each of the fishery management plans as well as those under the Plan. Specifically, these Biological Opinions stated that it was anticipated that the final regulations implementing the vertical line strategy would prioritize risk reduction in areas where there is the greatest co-occurrence of vertical lines and large whales. The Biological Opinions stated that a model was being developed and constructed to allow gear configurations to be manipulated and determine what relative co-occurrence reductions (as a proxy for risk) can be achieved by gear configuration changes and/or effort reductions by area. This co-occurrence analysis is an integral component of the vertical line strategy that will further minimize the risk of large whale entanglement and associated serious injury and death. The Opinions identified the steps being taken by the agency to develop, analyze and implement a vertical line reduction rule including stating that the proposed rule would be published in 2013 and the final rule in 2014. NMFS Reviewed the current status of right, humpback, fin, and sei whales as well as loggerhead and leatherback sea turtles, the environmental baseline and cumulative effects in the action area, the effects of the continued operation of the American Lobster, bluefish, dogfish, monkfish, multispecies, skate, squid, mackerel and butterfish and summer flounder, scup and black sea bass Fishery Management Plans, in compliance with the requirements of the Plan. In December 2013 NMFS issued its Biological Opinions for the bluefish, dogfish, monkfish, multispecies, skate, squid, mackerel and butterfish and summer flounder, scup and black sea bass Fishery Management Plans and in August 2012 for the American lobster Fishery Management Plan and concluded that these proposed activities are likely to adversely affect, but not jeopardize the continued existence of these species.

An informal Section 7 consultation under the ESA was concluded for the rule to modify the Plan on August 16, 2013. As a result of the informal consultation, NMFS determined that the measures to modify the Plan were not likely to adversely affect ESA-listed cetaceans, sea turtles, fish, or critical habitat that occurs within the area affected by the rulemaking. All of the effects were expected to be either beneficial or negligible, depending on the species. Subsequent to completion of the consultation and in response to public comment received during proposed rulemaking, NMFS changed some aspects of the rule. NMFS has reviewed the changes to determine whether the Plan's measures as revised through rulemaking would affect ESA-listed species under NMFS' jurisdiction in a manner that has not been previously considered. On April 7, 2014, NMFS concluded that none of the changes to the rule are expected to change the conclusion of the August 16, 2013, informal consultation. NMFS, therefore, concludes that the action, as modified through the rulemaking process, is not likely to adversely affect any ESA-listed species under NMFS' jurisdiction.

Decision on the Final Action

The Plan is a comprehensive management program designed to reduce the risk of serious injury and mortality to right, humpback, and fin whales. Due to the continuing risk of serious injury and mortality of large whales since the most recent revisions of the Plan have gone into effect (i.e. Alternative 1, No Action), NMFS believes additional modifications to the Plan are needed to meet the goals of the MMPA and the ESA. In accordance with the MMPA, NMFS' goal for each of the three strategic large whale species (right, humpback, and fin) is to reduce incidental

mortalities and serious injuries attributable to interactions with commercial fisheries to levels that do not exceed the PBR level for each stock. On the basis of the data presented in the FEIS on the continued serious injury and mortality of large whales due to entanglement in commercial fishing gear, NMFS is approving further modification of the Plan. NMFS has determined that these measures support the mandates of the MMPA and ESA and comply with all applicable laws. The decision to implement the approved amendments to the Plan is based on the rationale contained in the analyses prepared for the FEIS and all other decision and analytical documents prepared for this action.

The proposed rule's preferred Alternative 5 presented in the DEIS would have implemented three closure areas to reduce the risk of serious injury and mortality incidental to interaction between whales and commercial fishing gear, thereby enhancing the likelihood of meeting MMPA requirements. Two of the three proposed closure areas; however, were determined to have low levels of "co-occurrence" of whales and fishing gear, and therefore the conservation benefit of closing those two areas was deemed to be minimal, while the cost to the fishing industry would have been substantial. The single closure contained in Alternative 6 (Preferred) was the only one of the proposed three closure areas in which there is a high level of co-occurrence of whales and fishing gear. Thus, closing this area will have a similar conservation benefit that closing all three of the areas in the proposed Preferred Alternative 5 would have had.

Other adjustments to Alternative 6 (Draft) which have been included are described as follows:

(1) New Hampshire state waters are exempted from the minimum number of traps per trawl requirement, but fishermen are not exempted from other previously implemented requirements. This is a change from the proposed Alternative 5 which would have exempted New Hampshire state waters from all requirements, and therefore increases the conservation benefit to whales from the measures in the proposed rule.

(2) The minimum number of traps per trawl for Massachusetts and Rhode Island state waters and pocket waters in Maine is reduced from three to two traps per trawl. This change is due to concerns about the safety of small boats having to work trawls of three traps as opposed to trawls of two traps. This change is negligible, and thus is still consistent with the MMPA.

(3) An exemption from the minimum number of traps per trawl requirement is newly created for a ¼ mile buffer in waters surrounding three inhabited islands in Maine – Monhegan, Matinicus, and Ragged Islands. Boats within this ¼ mile buffer will be allowed to continue fishing single traps rather than multiple trap trawls in the proposed rule, due to safety issues since these waters are generally less than 30 fathoms deep with rocky edges, and boats fishing close to shore areas usually small. Whales are not likely to come this close to shore, so this change does not lessen the conservation benefit.

(4) Gear marking is not required in exempted state waters, due to feasibility concerns of switching marks when moving from an exempt area to a non-exempt area. The change in conservation benefit to whales from this change is negligible.

Because this final action with a single closure and the other changes described above will provide a conservation benefit comparable to that which would have been provided by the preferred Alternative 5 in the proposed rule, yet pose less economic impact and fewer safety concerns to the fishing industry, it is consistent with the requirements of the MMPA. The changes as compared to the proposed rule, are justifiable under MMPA requirements and goals because they take into account the economics of the fishery, the availability of existing technology, and existing fishery management plans, as well as the goal of the ESA to avoid jeopardizing the continued existence of ESA-listed whales.

Among all the alternatives considered that achieve a reduction in co-occurrence this approved action minimizes potential economic impacts without increasing risk to large whales. NMFS approves this action because it responds to comments to improve the final action while balancing risk reduction considerations. Specifically, the variations listed above, as well as others in the approved action, decrease the number of affected vessels and result in reductions in compliance costs while changing little in terms of entanglement risk reduction. Because of the complexity of the management measures being implemented only the following general components of the final action are discussed below. Additional information and details on the direct and indirect effects of the approved action on large whales can be found in Chapter 5 of the FEIS.

1) Minimum number of traps per trawl
The risk of a serious injury or mortality from entanglement in commercial trap/pot gear can be reduced by reducing the number of vertical lines in the water, reducing the risk of a serious injury or mortality from the line should an entanglement occur, or a combination of both. The majority of vertical lines are found in the Northeast, specifically within the lobster trap/pot industry. The buoy line requirements only impact trap/pot gear. The minimum number of traps per trawl requirement restrict the number of trap/pot buoy lines that fishermen can employ, based on the area in which they fish and the distance to shore. These provisions would result in a decrease in the number of vertical lines in the water. In an average month, roughly 227,000 total trap/pot vertical lines are deployed in the Northeast. The restrictions on the number of buoy lines in the Northeast region when combined with other restrictions (closures) would result in estimated reductions of 30% of endlines. This reduction in vertical lines results in a reduction of the potential risk of entanglement through reducing the likelihood that whales and gear would co-occur in the same area at the same time. This reduction is depicted in the reduction of co-occurrence score of roughly 38%. NMFS believes the minimum number of traps per trawl requirement would result in a decrease in the risk of entanglement to large whales.

2) *Gear modifications*
To reduce the risk of the vertical line the final action will include a restriction on the breaking strength of buoy lines depending on where you fish in the Southeast Region. In Florida state waters, the breaking strength of line may be no more than 1,500 lbs. In Georgia and South Carolina, the breaking strength of line may be no more than 2,200 lbs. Also in the Southeast, all buoy lines must be made from sinking line, free of objects, and single trap/pots would be required. This differs from what is proposed in the Northeast to account for differences in right whale life history stage and environmental factors between the two regions. The Plan currently requires the use of weak links with breaking strengths of 600 to 1,500 lbs depending on

management area. This final action decreases the required breaking strength of weak links in Florida state waters. These gear modifications would reduce the likelihood that interactions between whales and commercial fishing gear will result in entanglements that cause serious injury or mortality.

3) *Changes to Gear Marking Scheme*
The final gear marking scheme is approved based on implementation considerations and technology presently available. The gear marking requirement of three marks (each 12" long) along the buoy line (top, middle, bottom) are designed to improve NMFS' ability to identify the gear involved in an entanglement. Specifically, this action would maintain the Plan current gear marking approach but would increase the size and frequency of these marks in an effort to answer where and when entanglements occur. These provisions would have no immediate direct impact on entanglement risks; however, in the long-term, they may assist NMFS' management efforts to protect large whales. If more promising gear marking techniques become available in the future, NMFS will discuss these further with the Team.

4) *Changes to exempted waters*
The final action exempts New Hampshire state waters from the minimum number of trap per trawl requirements. The areas that would be newly exempted from ALWTRP requirements include only those in which whales are unlikely to be found, as suggested both by NMFS' review of the data and its current understanding of whale behavior, as well as areas where whales are at low risk from impacts due to entanglement. Therefore, exempting these areas from Plan regulations is believed to be unlikely to have significant direct effects on endangered or protected whales.

A summary of NMFS' reasons for not approving the other alternatives are included below:

- **Alternative 1 (No Action)**: This alternative would neither achieve the required reduction in incidental mortality and or serious injury of large whales in commercial fishing gear, nor meet the requirements of the Plan.

- **Alternative 2**: Alternative 2 imposes a minimum number of traps per trawl requirement in the Northeast, gear modifications in the Southeast, and changes to the gear marking scheme coastwide. Alternative 2 would provide the lowest reduction in co-occurrence risk (with the exception of the No Action alternative); hence, NMFS did not choose this alternative.

- **Alternative 3**: Alternative 3 includes elements of Alternative 2 but imposes a minimum trap per trawl requirement that is less restrictive than that under Alternative 2. It also includes a seasonal trap/pot closure. The resulting reduction in co-occurrence risk is still among the lowest of all alternatives so NMFS did not choose this alternative.

- **Alternative 4**: Alternative 4 imposes the same requirements as Alternative 2 but also includes three trap/pot seasonal closures in certain areas of the Northeast. Alternative 4 is the least cost-effective alternative with relatively high costs per unit of co-occurrence reduction. This results in high compliance cost for industry for the same level of risk reduction available in other Alternatives.

- **Alternative 5**: Alternative 5 is a combination of Alternative 3 and 4. Although Alternative 5 is superior to Alternative 4 and achieves a greater estimated impact on co-occurrence at a lower total cost NMFS did not choose this alternative since it does not contain modifications that will allow NMFS to respond to the public comments received while balancing risk-reduction considerations.

- **Alternative 6 Draft**: Alternative 6 Draft includes elements of Alternative 5. In response to public comments received NMFS is approving an action that builds upon this alternative. However, NMFS rejected Alternative 6 (Draft) as is since it does not contain modifications that will allow NMFS to respond to the comments received while balancing risk-reduction considerations.

For a complete description of the alternatives, see Chapter 3 of the FEIS.

Environmentally Preferred Alternative

As required by the CEQ NEPA implementing regulations, NMFS shall identify the "alternative or alternatives which were considered to be environmentally preferable (40 CFR Part 15.05.2(b))." The environmentally preferred alternative is the alternative which causes the least damage to the biological and physical environment, and which best protects, preserves and enhances historic, cultural and natural resources. NMFS has determined that, overall, the measures being implemented represent the environmentally preferable alternative when considering the balance of environmental and economic effects that might accrue from these measures within the context and strictures of the MMPA and ESA.

NMFS considered the biological impacts across the considered alternatives using a variety of indicators that are likely to correlate with reduced entanglement risk to Atlantic large whales. Where sufficient information was available, the alternatives were compared using quantitative criteria. The analysis evaluates the impact of new Plan requirements relative to the status quo — i.e., a baseline scenario that assumes no change in existing Plan requirements. This baseline scenario is equivalent to Alternative 1 (No Action). It is important to note that the No Action Alternative (Alternative 1) would not achieve the objective of reducing harm to large whales by reducing the likelihood of entanglement and/or reducing the severity of an entanglement should one occur. If Alternative 1 were chosen, there would likely be additional incidents of serious injury and mortality to large whales due to entanglement in commercial fishing gear, rather than

a reduction in these interactions NMFS' evaluation of the impact of potential regulatory changes on whale entanglement risks is largely qualitative. This approach is necessary because models that would enable NMFS to conduct a rigorous quantitative assessment of such risks are currently unavailable; however, efforts to gain a better understanding of the factors that contribute to entanglement risks are underway. In particular, NMFS has invested for a number of years in the development of a model designed to address the following types of questions: Where and how do the fisheries that are subject to the requirements of the Plan operate? Where are concentrations of fishing line the greatest? Do whales frequent areas with high concentrations of fishing line?

Through the integration of information on fishing activity and gear configurations, this model characterizes geographic and temporal variations in fishing effort and the distribution of fishing line in waters subject to the Plan. The model also incorporates information on whale sightings per unit of survey effort (SPUE) and identifies areas and times at which whales and commercial fishing gear are likely to co-occur. The model's final product is a set of indicators that provide information on factors that contribute to the risk of entanglement at various locations and at different points in time. These indicators, in particular the number of vertical lines in an area and the area's co-occurrence score, assume to be related to the relative risk of entanglement in different locations. They also provide a basis for comparing the impact of alternative management measures on the potential for entanglements to occur. For a complete list of the quantitative risk reduction indicators and comparison of impacts by alternative, see Chapter 5 (e.g. Section 5.2.3.2) of the FEIS. The DEIS analyzed the impacts of Alternatives 2 through Alternative 6 (Draft). In response to public comment Alternative 6 (Draft) was modified as previously described and Alternative 6 (Preferred) was created. These modifications are within the range of previously analyzed effects and do not constitute a substantial changes from the DEIS. Alternative 6 (Preferred) results in a lower number of vessels affected by the proposed measures but the total percent reduction in number of vertical lines and co-occurrence remains relatively consistent. Alternatives 3 through 6 (Draft and Preferred) proposed closures so the analysis was conducted two ways to account for the potential for two fishing industry responses to the closures—relocation or suspension of fishing. The responses have different implications for each Alternative, but for the most part the impact of each response is similar. In all cases, there would be a change in the number of vertical lines in the area and thus, a change in co-occurrence and potential for risk reduction as a result of the closures.

The highest degree of protection in both scenarios results from Alternative 5 due to the combination of the strictest measures proposed in each of the alternatives as well as the most proposed closures. Alternative 6 (Preferred) is in the middle of the range of protection. Alternatively, the lowest degree of protection results from Alternative 2. Alternative 2 is the only Alternative that does not propose a closure; therefore, you would expect the impacts resulting from this Alternative to be less than the others. The least number of vessels are affected by implementing Alternative 6 (Preferred).

Thus, among all the alternatives considered that achieve the required reduction in mortality and serious injury to large whales by commercial fishing gear, this approved action minimizes potential economic impacts through various regulatory modifications without increasing risks to

large whales. The approved action contains modifications that will allow NMFS to respond to comments while balancing risk reduction considerations. Alternative 6 (Preferred) introduces a number of changes to Alternative 6 Draft, including: (1) changes to the minimum number of traps per trawl in Rhode Island state waters and Maine pocket waters, (2) changes to the areas affected by the proposed gear marking scheme, (3) creation of a ¼ mile buffer around three inhabited Maine islands that would continue to be allowed to fish singles and (4) exempting New Hampshire state waters from the minimum number of traps per trawl requirement as opposed to all Plan requirements. These and other minor variations (see the "Decision on the Final Action" section above) decrease the number of affected vessels and result in significant reductions in compliance costs, while sacrificing little, if anything, with respect to the likely reduction in entanglement risks.

The preferred alternative is the most cost-effective of the alternatives when comparing co-occurrence reduction to cost of compliance. The measures proposed in the final rule would achieve nearly as great a reduction in co-occurrence as what was presented in the proposed rule at approximately 57 to 70 percent of the estimated cost. The modifications are within the range of previously analyzed effects and do not constitute a substantial change from the DEIS. The modifications continue to increase the likelihood of meeting the requirements and goals of MMPA section 118 to reduce serious injury and mortality to below PBR and approaching ZMRG, taking into account the economics of the fishery, the availability of existing technology, and existing fishery management plans. For additional information on the comparison of biological impacts across regulatory alternatives, see Chapter 5 of the FEIS.

These measures are effective 60 days after publication of the final rule with the exception of the amended gear marking requirements and gear modifications in the Southeast (effective November 1, 2014) and amended gear marking requirements and minimum number of traps per trawl requirement in the Northeast (effective June 1, 2015). NMFS chose a phased-in implementation for this rule as a result of public comment. The changes in the Plan require the reconfiguration of approximately 200,000 vertical lines at an annual compliance cost of approximately $1.9 to $4.5 million. In the Southeast, Industry members and state partners requested that NMFS provide adequate time for industry to comply with the amended gear marking requirements, as 60 days would not be sufficient time for that purpose given the extent of needed changes in light of the new requirements. In the Northeast, Industry members and state partners requested that the implementation date coincide with the trap tag renewal date of June 1 to allow for a more cost-effective implementation of the new requirements, as gear is out of the water during that time as industry affix new trap tags for the upcoming season. The new minimum trap per trawl measure requires increasing the number of traps per vertical line which requires removal of equipment from the water and reconfiguration of line and equipment. Additional time is needed for fishermen to adapt to these changes. NMFS finds that there is good cause for the November 1, 2014 and June 1, 2015 phased-in implementation date to address the public's concerns, and given that the impact on conservation benefit to large whales from this phased-in implementation will be minimal given the relatively short delay in implementation. Specifically, the majority of the conservation measures included in the final rule will be in place 60 days after publication of the rule – including protective measures during calving season, and a closure that goes into effect January 1, 2015, and all current Plan requirements, including the

sinking groundline requirement, remain in place during this phased-in implementation of some of the new measures.

Mitigation

CEQ NEPA regulations require that agencies identify in the ROD whether all practical means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why. The regulations further state that a monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation. Mitigation measures are the practical means to avoid, minimize and reduce impacts, and compensate for unavoidable impacts.

No significant environmental harm is expected to result from the implementation of amendments to the Plan, therefore specific management measures to mitigate environmental impacts are not necessary. NMFS and the Team have developed a comprehensive monitoring strategy that evaluates industry compliance to the Plan's requirements and the overall effectiveness of the Plan in achieving its goals and objectives. This strategy includes both annual monitoring reports and a multi-year status summary intended to review the Plan's effectiveness and compliance over a 5-year timeframe. The Northeast Fisheries Science Center has identified proposed metrics that will be used to monitor progress. They project that five years of data would be required before a change may be able to be detected. Therefore, data from 2010 to 2014 may be required to answer this question. The first analysis of that data would not be able to occur until 2016 due to the availability of the five years of data after the previous sinking ground line regulations have been in place. If analyses determine that the Plan is not achieving its goals, NMFS will review the multi-year status summary to evaluate the potential causes for not achieving the management objectives and consult with the Team on the development of appropriate actions to address the Plan's shortcomings. NMFS continues to work with the US Coast Guard and state partners through Joint Enforcement Agreements to enforce regulations.

In addition, the NOAA Fisheries Greater Atlantic Regional Fisheries Office Protected Resources Division webpage (www.nero.noaa.gov/protected/whaletrp/reports/index.html) maintains an annual catalog of a series of monitoring metrics identified in the Plan Monitoring Strategy. These include serious injury/mortality, disentanglements, strandings, population abundance, sightings distribution, commercial fishing effort, law enforcement updates, and public and industry outreach. The intent of consolidating these monitoring strategy outputs into a single resource is to identify how they affect conservation outcomes.

Response to Comments

NMFS issued the Notice of Availability for the FEIS on May 16, 2014 (79 FR 28505) with a 30-day comment period through June 16, 2014. NMFS received 12 letters from commenters on the FEIS via email, letter or fax. All comments were reviewed by NMFS and addressed issues ranging from gear marking, minimum traps per trawl required, closure areas, implementation date, and exempted waters. Many of the comments were similar and/or identical to those received on the proposed rule and DEIS, for which responses are available in Volume II of the

FEIS (and will also be available in the final rule). However, new issues were raised and some comments, although similar to those made during previous comment periods, included points specific to locations, gear requirements, and other Plan modifications. Many comments were provided on economic and safety issues which included values dependent on the gear modification being discussed and area of operation; due to the general similarity in the nature of the comments, they were grouped together. NMFS is summarizing and responding to these comments below.

Comment 1: Six commenters supported the Alternative 6 (Preferred) and stated that the amendments to the preferred alternative seemed to offer a balanced approach. Specifically some commenters stated that the minimum trap per trawl requirement is generally supported among constituents.

Response: NMFS appreciates the support of the Preferred Alternative and associated changes to the Alternative 6 (Draft).

Comment 2: One commenter questioned the wisdom of requiring additional marking in Federal waters while there is no equivalent mark exempted US waters or Canadian waters. This commenter also suggested NMFS complete a peer review of the gear marking program to determine effectiveness and cost/benefit of the program. In addition, five commenters re-iterated concerns about the feasibility of increased gear marking outside the Maine exemption line.

Response: Based on implementation considerations and technology presently available, NMFS believes the final gear marking scheme in Federal and state waters is appropriate. NMFS acknowledges that entanglements with fishing gear from Canadian waters may also be a threat to large whales. NMFS is working with Canada to address these threats but the Plan is designed to respond to threats by domestic commercial fishing gear. NMFS will consider adding a peer review of the gear marking program to its monitoring strategy and will continue to pursue and support new gear marking technologies.

Comment 3: Six commenters supported a phased-in implementation of the final rule, specifically citing June 1, 2015 as a start date.

Response: This comment is similar to many received during the proposed rule and DEIS comment period. NMFS has decided to have a phased-in implementation and portions of the Preferred Alternative will have June 1, 2015 as a start date for the Northeast, November 1, 2014 for the Southeast, and 60 days from publication of the final rule for the mid-Atlantic.

Comment 4: One commenter suggested that after this final action goes into effect all future regulation of the lobster fishery be delayed until the impact of the groundline and new endline regulations are determined**.**

Response: Regulation of the lobster fishery beyond reducing entanglements with vertical lines is outside the scope of this action. Future federal management actions in the lobster fishery will consider the cumulative impact of this rule during environmental analysis. As noted in

response to comments on the DEIS and proposed rule NMFS has developed a comprehensive monitoring strategy that evaluates industry compliance to the Plan's requirements and overall effectiveness of the Plan in achieving its goals and objectives. NMFS will continue to follow this monitoring strategy to determine if future rulemaking is needed.

Comment 5: Three commenters urged NMFS to address emerging fisheries specifically the waved whelk and Jonah crab fisheries. One commenter suggested NMFS support the work of the lobster industry and ASFMC to establish a Fishery Management Plan linking the Jonah crab fishery to lobster regulations.

Response: Management of emerging fisheries is outside the scope of this action. NMFS has a plan in place to deal with emerging fisheries through its annual List of Fisheries. Fisheries are added to the Plan once they are classified on the annual List of Fisheries as having frequent or occasional interactions with right, humpback, or fin whales. If an emerging fishery fits these criteria and is added to the List of Fisheries, then that fishery would have to abide by all the Plan's requirements. Emerging fisheries are also addressed in the Plan's Monitoring Strategy.

Comment 6: One commenter stated that proposed trap reductions would surely result in reductions in vertical lines and as such should be considered as an entanglement remediation measure. One commenter further suggested setting up a trap tag return program in Federal waters to ensure reducing the number of traps fished would lower the vertical lines on an equivalent basis.

Response: During the comment period for the DEIS and proposed rule, NMFS requested comments on how best to quantify potential future trap reductions or increases with respect to how many vertical lines could be reduced or increased. NMFS did not receive any substantive comments addressing this issue. NMFS realizes that potential effort reductions or increases in the future could reduce or increase the number of vertical lines in the water column and will continue to monitor these changes through its Monitoring Strategy.

Comment 7: Four commenters supported the ¼ mile buffer around the islands of Monhegan, Matinicus, and Ragged but felt that the buffer should be granted to two other groupings of islands within Penobscot Bay (Metinic, Seal, and Wooden Ball Islands) and the Isles of Shoals (Cedar, Smuttynose, Malada, Appledore, and Duck Islands). One commenter suggested Metinic Green Island, Hog Island, and The Nubble be included in the buffered area of Metinic Island. The commenters stated that these islands share same characteristics and due to rough bottom conditions lobstermen are not able to fish pairs in these areas citing safety issues that could result in giving up fishing these waters.

Response: Although the characteristics of these suggested islands are all similar, previous comments did not specify these particular islands. The islands NMFS chose for final action responded to concerns of communities on those islands that are inhabited. Those fishing from these communities closest to these islands are nearing retirement or young entrants learning the trade. Should these safety concerns become a problem NMFS could consider the additional islands for the buffer zone after consultation with the Team and through subsequent rulemaking.

Comment 8: One commenter requested and exemption for Rhode Island state waters on single lobster and fish pots, stating the co-occurrence model and entanglement data do not support this measure. One commenter stated that NMFS should expect a formal exemption request for measures in Massachusetts in the coming weeks.

Response: Should a state wish to exempt portions of its waters from the Plan, NMFS has established a process for requesting exemptions from requirements under the Plan. Such requests should be submitted and evaluated consistent with the NMFS Process for Evaluating Exemption Requests (http://www.nero.noaa.gov/whaletrp/plan/ALWTRT%20Exemption%20Request%20Process_final.pdf) that was developed in cooperation with the Team. Following the Team's existing Process, NMFS may allow such exemptions. As a part of the Process NMFS will, among other things, forward each request to the Team, seek to identify any issues or concerns with the request, and convene the Team to discuss and provide a recommendation on the request before taking appropriate action (i.e., commence rulemaking, request more information, or deny request).

Comment 9: Two commenters were concerned that the closure start date of January 1st would have unintended economic consequences because fishermen would have to start removing traps in November stating that the closure would not only affect those that fish in the winter but also the late fall. The commenters went on to state that those fishing during the spring (at the end of the closed season) would be affected as well as they tend to set traps in March or April and would be unable to until May 1st.

Response: NMFS evaluated the costs associated with the closure to the benefits to large whale species that frequent that area during the closure period and determined that the closure was warranted. The costs to industry preceding and following the closures were analyzed in the FEIS Section 6.3.2.3 "Transition Costs".

Comment 10: One commenter stated that the enforcement potential for the final action is slim stating that US Coast Guard is not likely to check on enforcement of whale rules and state enforcement is hard pressed to have sufficient patrols to enforce the rules.

Response: As stated in response to comments on the DEIS, NMFS continues to work with the US Coast Guard and state partners through Joint Enforcement Agreements to enforce regulations. NMFS Office of Law Enforcement had the opportunity to review the final action and provided input as necessary.

Comment 11: One commenter stated that the Monitoring Strategy fails to identify any methodology to assess the plan's effectiveness to reduce VL, risk from VL, or calculate accurately any future of changes in co-occurrence scores that would be correlated with risk reduction.

Response: A revised Atlantic Large Whale Take Reduction Plan Monitoring Strategy has been completed as a companion to the final rule to amend the Plan. As part of the revisions, we will be regularly updating the co-occurrence model to monitor reductions in vertical lines and

corresponding entanglement risk reductions over a five year period after the final rule is fully implemented. We will notify the Team of the availability of the revised Monitoring Strategy in the near future. Also. a new Plan performance dashboard will be made available on the GARFO website to allow Team members, interested parties, and the public to monitor Plan performance metrics.

Comment 12: Two commenters felt that the Massachusetts Restricted Area closure should include both trap/pot and gillnet gear. One commenter further stated that the resulting risk from not closing the area to both gears would fall most heavily on humpback whales.

Response: The FEIS cites reasons for not including gillnet gear in the proposed measures. See Chapter 3 Appendix 3-A 'Rationale for Rejecting Proposed Gillnet Measures'.

Comment 13: One commenter supported the increase in size and frequency of the gear marking scheme yet felt that the spatial scale of the color markings is not sufficient. The commenter suggested that a separate color be included for each LMA in the Northeast.

Response: The gear marking color scheme has been in place since gear marking was first added to the Plan. Based on implementation considerations and technology presently available, NMFS believes the final gear marking scheme is appropriate. However, NMFS will continue to pursue and support new gear marking technologies.

Comment 14: One commenter stated that it appears that the majority of the new measures being imposed will disproportionately affect fishermen from Massachusetts as that state has mandatory reporting requirements and therefore more available data to inform the co-occurrence model.

Response: Available state data varied from state to state. NOAA worked directly with state marine resource officials to develop modeling assumptions for vessels fishing exclusively in state waters. For some states, key activity and gear configuration parameters are estimated based on reporting data (e.g., logbook data) furnished by fishermen in accordance with state requirements. For others, surveys are the primary source of this information. In some cases, these surveys are one-time efforts, while others are administered annually (e.g., recall surveys). Finally, for some states, the characterization of fishing activity is based upon the professional judgment of state fisheries experts. In several cases, the data are taken from a mix of sources (e.g., surveys and best professional judgment). Regardless of how data was collected, the process by which management measures were determined remains the same.

Comment 15: One commenter stated that NMFS failed to provide adequate justification in the FEIS for rejecting closures in Jeffreys Ledge and Jordan Basin.

Response: NMFS believes the FEIS, ROD, and final rule provides adequate justification for the rationale behind choosing the Preferred Alternative and associated management measures.

Comment 16: One commenter stated that it is unclear why Maine is exempt from the marking proposed in the previous Preferred Alternative. The commenter restated the justification NMFS gave of the infeasibility of marking inside and outside of the exemption and pointed out that Fishermen fishing in LMA 2/3 Northern Nearshore waters and Outer Cape are required to use one color, yet those fishing in LMA 2/3 in an adjacent management area are required to use another color.

Response: The gear marking color scheme has been in place since gear marking was first added to the Plan. Based on implementation considerations and technology presently available, NMFS believes the final gear marking scheme is appropriate. However, NMFS will continue to pursue and support new gear marking technologies.

Summary

After careful review of the proposed measures, the associated analyses, and the public comments that NMFS received on the amendments to the Plan, NMFS is approving the amendments in the FEIS final preferred alternative. This final action seeks to reduce the risk of large whale entanglement by measures such as requiring a minimum number of traps per trawl, strengthening the current gear marking scheme, and mandating gear modifications to vertical lines such as the use of weak links of lower breaking strength. These changes are designed to address ongoing entanglement issues, especially those involving vertical line. NMFS has determined that, overall, the measures being implemented represent the environmentally preferable alternative when considering the balance of environmental and economic effects that might accrue from these measures within the context and strictures of the MMPA and ESA. In addition, NMFS has determined the preferred alternative will promote the national environmental policy as discussed in Section 101 of NEPA. NMFS also concludes that all practical and legally justifiable means to avoid, minimize, or compensate for environmental harm from the final action have been adopted.

NMFS has considered all applicable public comments received on the amendments to the Plan. Responses to all comments on the DEIS are available in Volume II of the FEIS.

Further information concerning this Record of Decision may be obtained by contacting John Bullard, Regional Administrator, NMFS Greater Atlantic Region, 55 Great Republic Dr, Gloucester, MA, 01930, (978) 281-9200.



June 20, 2014

Eileen Sobeck
Assistant Administrator for Fisheries

Date