

**NATIONAL MARINE FISHERIES SERVICE
ENDANGERED SPECIES ACT - SECTION 7 CONSULTATION**

BIOLOGICAL OPINION

Agency: United States Coast Guard
(Atlantic Coast Districts)

Activity: Second Reinitiation of Consultation on United States
Coast Guard Vessel and Aircraft Activities along the
Atlantic Coast

Consultation Conducted By: National Marine Fisheries Service
Northeast Region
GARFO-1997-00002

JUN 8 1998

Date Issued: _____

Introduction: The National Marine Fisheries Service (NMFS) has reviewed the current status of United States Coast Guard (USCG) vessel and aircraft operations along the Atlantic Coast, excluding the Gulf of Mexico, based on a request to reinitiate formal consultation on December 11, 1997. This document represents the NMFS Biological Opinion on the effects of those activities on endangered whales and endangered and threatened sea turtles in accordance with section 7 of the Endangered Species Act of 1973, as amended, (16 U.S.C. 1531 et seq; ESA)

This Biological Opinion is based on information provided in the Final Environmental Impact Statement for the USCG Atlantic Protected Living Marine Resources Initiative (October 31, 1996), the Letter Incident Report (July 23, 1997) describing a take of a humpback whale by a USCG vessel on July 20, 1997, and an assessment of the status of USCG's implementation of the Reasonable and Prudent Alternatives and Conservation Recommendations of Biological Opinions issued September 15, 1995 and July 22, 1996 through a letter provided by Rear Admiral Larabee, Commander, USCG First District on December 11, 1997 and through phone conversations with Lt. Ray Erne, USCG First District. Review of current information on the status of endangered and threatened species that may be affected by USCG Atlantic Coast operations that has become available since the July 1996 consultation has been included in the species status section. Information on species status provided in the earlier opinions was considered in evaluating the USCG's activities for the purposes of this consultation, some of which is only incorporated by reference. Finally, this Biological Opinion has also considered any new information since the biological assessment information provided for the 1995 and 1996 Biological Opinions and the information contained in the Biological Opinions themselves.

A. Consultation History

On September 15, 1995, NMFS issued a Biological Opinion to the USCG pursuant to section 7 (a)(2) of the ESA on vessel and aircraft activities along the Atlantic coast. A discussion of current information on protected species throughout their range along the Atlantic Coast was included, as well as discussion of the possible impacts from these activities.

Shortly after the 1995 Biological Opinion was issued, the USCG reported that they may have struck another whale. Based on a tentative identification of the whale as a humpback whale (*Megaptera noveangliae*), the USCG reinitiated consultation. While the reinitiated consultation was in progress, NMFS became aware of an unusual number of right whale (*Eubalaena glacialis*) mortalities in the action area. NMFS concluded this reinitiated consultation on July 22, 1996, when it issued a second Biological Opinion to the USCG which concluded that the USCG's actions may affect, but were not likely to jeopardize the continued existence of the humpback whale, fin whale (*Balaenoptera physalus*), and sea turtles, but was likely to jeopardize the continued existence of the endangered northern right whale; this conclusion was based on the status of the right whale, the potential for serious injury or mortality to the northern right whale associated with continued USCG vessel and aircraft operations, and the possibility that the right whale population was declining. The Biological Opinion also concluded that the USCG's vessel and aircraft operations were not likely to destroy or adversely modify designated critical habitat. The Biological Opinion provided the USCG with reasonable and prudent alternatives that would avoid the likelihood of jeopardizing the continued existence of the northern right whale.

As a result of the two Biological Opinions mentioned above and efforts that had begun prior to 1995, the USCG embarked on development and implementation of an extensive Atlantic Protected Living Marine Resources Initiative (APLMRI), which included considerable efforts by the USCG to modify vessel and aircraft operations in order to reduce impacts to the northern right whale, particularly in its critical habitat off the Georgia/ Florida coastline, and critical habitats in the Great South Channel and Cape Cod Bay, Massachusetts.

On August 29, 1997, NMFS received a letter from the First District Office which provided detailed information on the U.S. Coast Guard Cutter (CGC) *Campbell*'s incident (see the incident description below). Over the next three months, subsequent communications between NMFS' Northeast Region and the First District staff provided the remainder of material necessary to prepare this opinion. On December 11, 1997, the USCG submitted a request for formal consultation.

During the consultation, a juvenile blue whale (*Balaenoptera musculus*) was reportedly struck and killed by a commercial vessel in March 1998. Blue whales are distributed offshore of the areas where USCG vessels rarely operate. NMFS evaluated the March 1998 blue whale mortality to determine if blue whales are likely to be adversely affected by the USCG's vessel and aircraft operations along the Atlantic Coast. After considering information on the known distribution of blue whales, the information available on the blue whale that was struck and killed in March 1998, and the area in which USCG vessels and aircraft operate, NMFS concluded that the USCG's vessel and aircraft operations were not likely to adversely affect blue whales.

On April 30, 1998, NMFS sent a letter to the USCG requesting an extension to the 135-day consultation period prescribed in section 7 of the ESA and its implementing regulations (50 CFR 402.14). That letter asked the USCG to agree to extend the consultation to May 18, 1998, when the final Biological Opinion would be delivered to the USCG.

On May 15, 1998, NMFS sent a letter to the USCG requesting a second extension to the 135-day consultation period that letter asked the USCG to agree to extend the consultation to May 27, 1998, when the final Biological Opinion would be delivered to the USCG.

Incident Description

On July 20, 1997, CGC Campbell was en route to Closed Area II (Appendix A) after departing from Provincetown, Massachusetts on a domestic fishery enforcement mission. The ship proceeded around the tip of Cape Cod and transited Cape Cod Bay Critical Habitat (CCBCH) and the southeastern tip of Stellwagen Bank National Marine Sanctuary. While transiting CCBCH between 0956Q and 1143Q and the National Marine Sanctuary between 1143Q and 1215Q, the bridge watch sighted several humpback whales along the ship's track line over a distance of about 15 miles. Key personnel were aware that sighting sheets and voice radio broadcasts related to whale sightings were required.

At 1101Q the Commanding Officer (CO) ordered the watch to increase vessel speed to 18 knots to fulfill an annual engineering requirement for a full power trial, thinking that the ship had cleared the CCBCH. The ship did not actually clear the CCBCH until 42 minutes later. At 1145Q, just after the ship cleared CCBCH, the ship's speed was slowed to 8 knots and the course adjusted to avoid two humpback whales sighted at 4,000 yards. The CO came to the bridge after being notified of the passing whales. The whales passed the ship at 1000 yds swimming in the opposite direction. Once the whales cleared aft of the ship, the ship returned to its original course and speed. The CO's plan was to arrive at Closed Area II in time to conduct boardings prior to sunset, conducting a required full power trial en route (hence the return to 18 knots). A voice radio broadcast was prepared on the sightings, but was not made per CO's orders. He was concerned that a broadcast would encourage other vessels to locate the whales and increase the likelihood of an interaction. Numerous whales were sighted throughout right whale critical habitat, throughout the Stellwagen Bank National Marine Sanctuary, and immediately outside of the sanctuary; these whales were identified as humpback whales.

The ship had been cruising at 18 knots since 1101Q (with the exception as noted above), and the full power trial began at 1214Q. At 1225Q, two humpback whales appeared 300 yds off the starboard bow. The ship maintained its speed of 18 knots and altered its course away from the whales that were traveling in the opposite direction.

Almost 2 hours later (1415Q), a trained marine mammal lookout observed a humpback whale close aboard the starboard bow, 5-10 feet below the surface, and immediately shouted the report into the pilot house door. At the same time various personnel reported a bang or thump emanating from the starboard side and felt the ship shudder. The time was logged and position fixed. The position was 42°09.6'N/069°12.9'W at 1415Q (see chart, Appendix A). Ship's speed was 20 knots. Two expanding search patterns were conducted concluding at 1749Q which did

not produce any evidence of the whale or injury to the whale. Although the evidence surrounding the incident only suggests that the CGC *Campbell* may have interacted with a whale, for the purposes of this Biological Opinion, NMFS will adhere to a precautionary principle by assuming a humpback whale was struck.

The USCG Cutter *Campbell* was equipped with the latest guidance and training material with respect to operations around marine mammals and both CCBC and SBNMS were highlighted on the ship's charts. Further, after the investigation the USCG instructed that the CO be counseled about "his lack of attention to detail related to the letter and intent of the marine mammal protection program and associated enforcement guidance publications during the transit of the CGC *Campbell*. This would include the necessity to routinely comply with both the letter and intent of the program, the ramifications of not verifying the critical information such as the ship's position before initiating potentially hazardous operations, the fact that the marine mammals may show up in areas other than critical habitat area, the necessity to be aware of all environmental factors and circumstances while underway and the necessity to focus on the overarching ramifications of his decisions versus immediate goals." The USCG also recommended that a summary of this event be provided to all cutters that may operate in First District waters as a training tool to avoid the future occurrence of any similar incidents.

The section 7 regulations require reinitiation of consultation if the allowable incidental take is exceeded (50 CFR 402.16(a)), in this case if an endangered whale is struck or injured by a USCG vessel. In addition, the 1996 Biological Opinion requires the USCG to notify NMFS within 24 hours should such an incident occur. Within 24 hours of the incident, the USCG verbally notified the Assistant Regional Administrator for Protected Resources in the NMFS' Northeast Region that the CGC *Campbell* may have interacted with a whale; when NMFS was notified, the USCG had not confirmed that the CGC *Campbell* had struck a whale because they had to wait for the vessel to return to shore to conduct interviews. Subsequently, the USCG notified NMFS by letter on July 25, 1997, after appropriate investigation with the ship's crew, that the CGC *Campbell* may have struck a whale while underway on July 20, 1997. A summarized report, concluding that a humpback whale had been struck, was provided to NMFS on August 13, 1997 (within 15 days of completion of the mission), also as required by the Biological Opinion.

B. Description of the Action Being Considered in This Biological Opinion

This consultation considers USCG vessel and aircraft operations on the Atlantic Coast (except for the Gulf of Mexico) in support of its missions: response to marine pollution events, port safety and security issues, law enforcement issues, search and rescue missions, vessel traffic control, and maintenance of aids to navigation. The action being considered in this Biological Opinion includes a re-evaluation of USCG vessel and aircraft activities on protected species under NMFS' jurisdiction in light of the July 20, 1997, incident and the following changes in vessel and aircraft operations from what was considered in these previous opinions: (1) standard operating procedures now include operational directives which implement the reasonable and prudent alternatives and conservation recommendations of Biological Opinions and the APLMRI, (2) the USCG's proposal for a multi mission upgrade, and (3) a request to change flight altitude restrictions from what had been proposed in the USCG Biological Assessment.

Vessel Activity: The USCG Atlantic fleet consists of about 242 vessels, ranging from 21 feet to 378 feet in length. Each year the USCG fleet collectively logs over 12,000 vessel-days-at-sea. Table 4-3 in the BA summarizes the USCG's vessel activities (per vessel type) along the U.S. Atlantic Coast. The USCG has issued the following guidance for non-emergency cutter and boat operations in their Law Enforcement Bulletin:

“To avoid a collision with a whale during the course of normal operations, Coast Guard units transiting critical habitat, migratory routes and high use areas (see 50 CFR Part 227.2 and Part 227.4) shall use extreme caution, be alert and reduce speeds as appropriate. Appropriate reduced speeds should be based on the factors identified in Rule 6 (safe speed) of the International/Inland Navigation Rules (COMDTINST M16672.2C). Additional reductions in speed should be considered when a whale is sighted or known to be in the immediate vicinity or within five nautical miles of the vessel. In these situations, vessels shall use those courses and speeds as appropriate, yet navigationally prudent, to avoid a collision with a whale, and, if necessary, reduce speed to the minimum at which the vessel can be kept on course or come to all stop.”

Also, the USCG's Law Enforcement Bulletin provides written guidelines have been given for vessel operations when a whale is sighted in any location to further reduce contact with the whales. Special instructions also have been given to the Seventh District when operating USCG vessels in the southeastern right whale critical habitat during calving season and for informing all mariners of their presence and vulnerability.

The USCG's Law Enforcement Bulletin also provides written approach guidelines for non-emergency operations prevent vessels from approaching whales head-on, approaching right whales within 500 yds, or other whales within 100 yds. The USCG has asked to waive the 500-yard approach limit for northern right whales so that they can contribute to support whale conservation, as requested by NMFS, to photograph or collect other whale related data.

Of the USCG's missions, emergency operations have the greatest potential for impacting whales and turtles on the surface. Emergency missions, such as emergency search and rescue (SAR) operations that involve vessels responding to assist or to save persons and property distressed at sea, are presumed to have the least discretion in determining their operating speeds. In practice, USCG vessels respond to reports of such emergencies at “maximum safe speed.” This speed is determined by weighing the response vessel's speed and sea-keeping characteristics against sea and weather conditions — wind, wave height and frequency, visibility, forecasts.

Not all SAR missions are emergency operations. In the large majority of SAR missions, the location of the distressed vessel or person is known (90 percent), and the victim is within 20 miles of the shore (95 percent). About 77 percent of SAR missions are not true emergencies and the vessel would be able to decrease speed and deviate from course to avoid interacting with listed species. Most USCG resources need not respond at “maximum safe speed.” Therefore, in most cases, the vessel may reduce speed.

On the Atlantic Coast, the USCG responds to about 18,500 SAR cases each year (Battelle, 1995). There are no documented collisions of USCG vessels with whales or turtles during SAR missions.

Aircraft Activity: Along the Atlantic Coast, the USCG operates 17 fixed-wing aircraft and 32 helicopters. In the Biological Assessment the USCG provided for the 1996 Biological Opinion, they proposed to limit aircraft operations to 3,000 ft. over critical habitat, unless engaged in emergency operations. The USCG is now proposing to lower that limit to an altitude to 2,000 ft. over sensitive areas (which includes critical habitat), unless engaged in emergency operations or marine mammal surveys. USCG aircraft are required to avoid approaching northern right whales closer than 1,500 ft., except to conduct marine mammal surveys or to conduct emergency operations. Infrequently, the aircraft perform reconnaissance flights during oil and hazardous material spill response operations, and will fly below 2,000 feet. Most of the fixed-wing operations are within 20 miles of the shore. The helicopters are used frequently in SAR operations. Low-altitude flights and hovers are used to extract victims and to pass rescue supplies. Low-altitude operations can be dangerous and are kept to a minimum.

Multi-mission station upgrade. This proposal is to upgrade Atlantic Area command stations to accommodate the home porting of 47-foot motor life boats. New cutters will be replacing the existing 44-foot heavy weather rescue boats and some of the 41-foot utility boats that were considered part of operations in the initial consultation. The new 47-foot lifeboats are expected to provide enhanced search and rescue capabilities due to more efficient operational characteristics. The action also includes modifications to several existing boathouses at the waterfront level to upgrade piers, construct covered mooring facilities, dredging of mooring slips and related shore facility upgrades, with possible pier modifications and shore tie replacement at some locations. Upgrading the boathouses, moorings, and shore support facilities only where existing facilities are unable to homeport the new boats. The specific modifications required are outlined by station in Table 2 of the Environmental Assessment prepared by the USCG (July, 1997). Only a few facilities will require dredging and this is only in boat basins and mooring slips at Stations Watchapreague, Fairport, Georgetown, Brant Point, and Merrimac River. Districts 1, 5, 7, 8, and 9 are scheduled to receive these replacements or already have their prototypes. The overall mission and standard operating procedures of the multi-mission stations will not change. The net affect is more larger, faster vessels than was previously considered in NMFS Biological Opinions. This will be discussed in detail in the "Effects of Action" section. For a complete, detailed description of this proposal, see the USCG Environmental Assessment for this action.

Finally, the action being considered in this Biological Opinion includes the actions the USCG is implementing to comply with the reasonable and prudent alternatives identified in the 1996 Biological Opinion. Specifically, the USCG (a) posts lookouts during all transits within 20 nm of shore, in whale concentration and high-use areas; (b) requires its lookouts and bridge watchstanders to successfully complete a marine mammal lookout training program; (c) provides support for aerial whale surveys; (d) issues speed guidance for its vessels; (e) has issued vessel approach guidance; (f) participates in finding technological solutions to prevent ship strikes; (g) provides information on whales to commercial and recreational vessel operators; and (h) has presented a proposal developed in conjunction with other Federal agencies (primarily NOAA and the Marine Mammal Commission) to the International Maritime Organization that requests two mandatory ship-reporting systems along the east coast of the United States (see Appendix B of this Biological Opinion for a complete listing of the status of the USCG's implementation of the reasonable and prudent alternatives from the 1996 Biological Opinion).

Action Area

The Action Area for this consultation is the Atlantic Coast of the United States bounded on the north by the border between the State of Maine and New Brunswick, Canada; bounded on the south by Key West, Florida; the seaward boundary extends throughout the Exclusive Economic Zone, which is measured 200 nautical miles from the baseline. The majority of Coast Guard operations occur in coastal waters (less than 20 miles from shore), although some missions are conducted up to 200 miles offshore (USCG 1995).

C. Status of the Species Included in This Biological Opinion

NMFS has determined that the action being considered in this Biological Opinion may adversely affect the following species that are provided protection under the ESA

Endangered

Humpback whale	<i>Megaptera novaeangliae</i>
Northern right whale	<i>Eubalaena glacialis</i>
Fin whale	<i>Balaenoptera physalus</i>
Leatherback sea turtle	<i>Dermochelys coriacea</i>
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>
Green sea turtle ¹	<i>Chelonia mydas</i>
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>

(¹ Green turtles in U.S. waters are listed as threatened except for the Florida breeding population which is listed as endangered. Due to the inability to distinguish between these populations away from the nesting beach, green turtles are considered endangered wherever they occur in U.S. waters.)

Threatened

Loggerhead sea turtle	<i>Caretta caretta</i>
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Critical Habitat Designations

Northern right whale	<i>Eubalaena glacialis</i>
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Complete species accounts, a description of critical habitat, and references can be found in the September 15, 1995 and July 22, 1996 NMFS Biological Opinions and are incorporated herein by reference. This section summarizes information contained in previous Biological Opinions and provides additional information on the three whale species that are the focus of the consultation. This section focuses on whales because the new information is the most relevant to a re-assessment of the conclusions reached in the 1995 and 1996 Biological Opinions on the USCG's Atlantic vessel and aircraft operations. Complete updates of information on sea turtles can be found in the *Status Reviews of Sea Turtles Listed Under the Endangered Species Act of 1973* (NMFS and USFWS, 1995) and the *Synopsis of the Biological Data on the Green Turtle (Chelonia mydas)* (FWS, 1997).

Northern right whale

New Information: Since NMFS issued the 1996 Biological Opinion on the USCG's vessel and aircraft operations, there has been new information on the status and trends of the northern right whale. Specifically, there has been new information on right whale mortalities and births and several more recent efforts to estimate the trends of the northern right whale population.

The 1996 Biological Opinion established that, from the summer of 1995 to March 1996, 8 right whales died from various causes (see the 1996 Biological Opinion for a detailed description of these mortalities). In the remaining months of 1996 no further mortalities were reported. In addition to these mortalities, 2 right whales were entangled in fishing gear during 1996; one was a serious injury, the other was disentangled and was seen the following year with a calf. The 1996 Biological Opinion also noted that of the seven right whale mortalities documented as an unusual mortality event in 1996, six occurred in the waters adjacent to the calving grounds. This has since been corrected to six and five, respectively, after data review showed that one carcass had been reported twice. Preliminary data from 1997 (which has not been verified), indicates that one mortality occurred from natural or unknown causes, another mortality occurred due to a ship strike in the Bay of Fundy, and 6 entanglements were reported in Canadian waters and 2 in U.S. waters (although in some cases it is not known if these entanglement reports represent resightings of the same individuals). So far in 1998, one known mortality (a calf) has occurred due to natural causes.

In 1997, the New England Aquarium reported that 19 new calves were born into the northern right whale population.

In 1994, Knowlton *et al.* (1994) concluded that the northern right whale population was growing at an annual rate of 2.5% (CV=0.12), a conclusion that has been reported in NMFS' stock assessment reports (Blaylock *et al.* 1995, Waring *et al.* 1997). However, after reviewing preliminary, new data from the New England Aquarium, the 1996 Biological Opinion acknowledged the possibility that the northern right whale population may have been "experiencing an actual population decline," although the Biological Opinion recognized that the data supporting this consideration needed further analysis.

Since the 1996 Biological Opinion was issued, there have been several examinations of the data used in Knowlton *et al.* (1994) and new attempts to model the trends of the northern right whale. A draft working paper prepared by Hain *et al.* (in preparation) examined the effects of survey effort on the trend identified by Knowlton *et al.* (1994) and suggested that the northern right whale population may not have been declining. From March 19-25, 1998, a workshop and special meeting of the International Whaling Commission's (IWC) Scientific Committee was held to conduct a comprehensive assessment of right whales worldwide¹. The workshop's participants reviewed available information on the northern right whale, including Knowlton *et al.* (1994), Kraus (1997), and a working paper prepared by Caswell and Brault. After considering the available information, the workshop attendees concluded it is unclear whether the northern

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A report of the workshop is expected to be released by the IWC in late May 1998 and an IWC special edition of the workshop report will likely be published within the next two years.

right whale population is “declining, stationary or increasing and the best estimate of current population size is only 300 animals.”

The 1998 IWC workshop recommended, as a matter of urgency, increased efforts to determine the trajectory of the northern right whale population. NMFS’ Northeast Fisheries Science Center has already begun to implement that recommendation. However, for the purposes of this Biological Opinion, NMFS will assume that the northern right whale population is declining until new estimates become available; although this assumption is neither supported or refuted by the best scientific and commercial information available, it is more protective of the northern right whale than alternative assumptions.

Range wide status:

By the 1700s, the northern right whale was depleted by commercial whaling fleets; it was the preferred target species because it floated and was easily captured and butchered. Shore whaling was conducted off Massachusetts, New York, New Jersey, North Carolina, and Florida beaches. By 1750, directed harvest of right whales had reduced the population to numbers no longer able to sustain a vigorous coastal fishery (Allen, 1916). The latest marine mammal stock assessment report estimated the minimum size of the northern Atlantic right whale population to be 295 (Waring *et al.*, 1997), an estimated 3-4 percent of the initial population.

The Northern Right Whale Recovery Plan established a recovery goal of 6,000 North Atlantic right whales, which represents 60-80 percent of the estimated pre-exploitation level (NMFS, 1991a). Schevill *et al.*, (1986) compared historical whaling data and modern sighting information and concluded that there was no evidence that the right whale population in the seventeenth century was any larger than it is today.

Reeves and Mitchell (1987) also compiled whaling records in an attempt to determine the pre-exploitation population levels of right whales. Their studies of the North Atlantic harvest of other mysticetes resulted in population estimates through assumptions that the sum of removals during the peak decade was comparable to a conservative minimum estimate of the pre-exploitation population size. Incomplete records and conflicting evidence indicate levels of harvest of right whales may have been sustainable, with no peak decade evident. A minimum of 245 right whales were harvested from 1700-1709; however, similar levels were believed to have been harvested in all decades between 1680 and 1719. The authors noted the possibility that Basque whaling effort prior to the 1600s off Newfoundland likely included effort on right whales of the same, or a neighboring, stock (also see Reeves and Mitchell, 1986).

NMFS (1991a) suggested that Basque whaling activities, which ceased by the late 1600s, may have extirpated the western North Atlantic right whale along the Labrador Coast before colonial times. Reeves and Mitchell (1987) concluded that, although they believe Schevill *et al.*’s (1986) suggestion regarding the similarity in abundance of whale now and in colonial time is unlikely, they cannot disagree with the possibility that the seventeenth century “population in this area may not have been as large as has been supposed.” Allen (1916) did not give an estimate of pre-whaling population levels, but indicated that at the time of settlement of New England and into the following century, “right whales were present in considerable numbers ...,” and cites Mayflower passengers and other writers of the period indicating whales were abundant in the

1600s. Reeves and Mitchell (1987) broadly estimated there were “some hundreds of right whales in the western North Atlantic during the late seventeenth century.” Despite these estimates, no one knows the size of the north Atlantic right whale population before it was exploited by the whaling industry.

Distribution: Cape Cod Bay and portions of Massachusetts Bay are among the five known right whale high-use areas (NMFS, 1991a). Right whales occur in Massachusetts waters in most months (Watkins and Schevill, 1982; Schevill *et al.*, 1986; Winn *et al.*, 1986; Hamilton and Mayo, 1990). Most sightings occur between February and May, with peak abundance in late March. Schevill *et al.*, (1986) report 764 sightings of right whales between 1955 and 1981 in Cape Cod waters. More than 70 right whales were seen in one day in 1970. Hamilton and Mayo (1990) report 2,643 sightings of 113 individual right whales in Massachusetts waters, with a concentration in the eastern part of Cape Cod Bay. A number of right whales, including cow/calf pairs, resided in Cape Cod and Massachusetts Bays during the summers of 1986 and 1987. Hamilton and Mayo (1990) as well as Payne *et al.*, (1990) attributed this shift in distribution to a dearth of sand lance in the bays and an associated abundance of calanoid copepods — the preferred prey of North Atlantic right whales.

Allen (1916) listed two takes of right whales in Boston Harbor, one in Boston Bay, one off Nahant and two off Duxbury. More recently, no right whales have been reported by marine mammal observers on the Boston Harbor dredge disposal barges which transit the area between Boston Harbor and the Massachusetts Bay disposal site.

Data regarding the normal length of residency of individual right whales in the bays is difficult to interpret, especially in light of recent satellite transmitter results indicating right whales tagged in the Bay of Fundy may travel long distances in the few days or weeks between sightings (Mate, 1992). Schevill *et al.*, (1986) reported individual right whales residing in Cape Cod waters for no more than a few successive days. In 1976 they observed a cow and calf over a 7-week period, the longest residence time documented between 1955 and 1981. Prior to the summer of 1986, Hamilton and Mayo (1990) reported observations of individual whales up to 12 times in a year, with the longest apparent residency being 89 days. Prior to 1986, 50 percent of the individual right whales observed by Hamilton and Mayo (1990) were seen in more than one year.

Right whales are present in foraging areas such as Cape Cod Bay, the Great South Channel, the mouth of the Bay of Fundy and Brown's Bank (NMFS, 1991) in the spring and summer months. Recent satellite tracking efforts have identified individual animals embarking on far-ranging foraging episodes not previously known (Knowlton, *pers. comm.*).

Reproduction and Calving: During winter, a portion of the population moves from the summer foraging grounds to the calving/breeding grounds off Florida, Georgia, and South Carolina. The winter location of the bulk of the population is unknown. During winter in 1992, right whales were reported in North Carolina waters, north of Cape Hatteras (Knowlton, *pers. comm.*).

Calves are produced in winter off the coast of the southeastern United States. Adult females calve every three to five years. Sexual maturity is reached as early as the fifth year and as late as age nine (Knowlton and Kraus, 1989). The animals size at this stage is from 30-40 feet in length.

The whereabouts of more than 60% of the population during the breeding season, including a significant portion of the female segment, is unknown. Those whales not congregating on the Georgia/Florida breeding grounds are likely scattered in distribution. Sightings over this season have been reported from the Gulf of Mexico (Moore and Clark, 1963; Schmidley *et al.*, 1972).

Nursery: Mead (1986) identified Massachusetts waters as second only to Florida waters for documented right whale calf sightings. Winn *et al.*, (1986) observed right whale calves in this region, and indicate calves throughout the western Atlantic were sighted in significantly shallower depths than adult right whales without calves. Hamilton and Mayo (1990) reported the occurrence of mother/calf pairs in the bays in six of the ten years of their study, and indicate cow/calf pairs remain in the bays for only short periods. A total of 30 calves were observed between 1979 and 1987, associated with 21 different cows. Nine of the 21 mothers were observed with calves in two different years, and calving intervals appeared to average three years. This is consistent with Kraus *et al.*'s (1986) estimates of calving intervals, which ranged from two to five years with a mean of 3.1 years. Schevill's (1986) report of 21 sightings of small calves in 12 of the 26 years of their study, including two calves likely born in the bays. Hamilton and Mayo (1990) indicated 28 percent of the calves identified prior to 1987 have been resighted in the bays as juveniles or adults. Both studies documented observations of mating behavior, and Hamilton and Mayo (1990) reported observations of nursing.

Foraging: Right whales feed primarily on copepods, but also consume euphausiids and other zooplankton. Estimates of right whale energetic requirements (Kenney *et al.*, 1986) indicate only very dense patches of zooplankton provide sufficient calories to meet the needs of right whales. While precise energetic requirements have not been determined, this model has been supported by two quantitative studies of zooplankton patches in the vicinity of feeding right whales (Murison and Gaskin 1989, Mayo and Marx, 1990). Both studies indicate right whales are capable of detecting dense prey patches and may not exploit patches if concentrations are reduced below certain threshold levels (around 1,000 individual copepods per cubic centimeter). Payne *et al.* (1990) showed a strong correlation between abundance of copepods due to the absence of sand lance (*Ammodytes americanus*) in the summers of 1986 and 1987 in Massachusetts waters, and the occurrence of right whales in the area in those summers. Competition between sand lance and right whales may be the basis for the seasonal patterns of right whale use of this area (Payne *et al.*, 1990; Kenney *et al.*, 1986).

Kenney *et al.* (1986) suggested variations in the location of adequate prey patches from year to year would compel right whales to expend significant amounts of energy to locate acceptable zooplankton patches. Gaskin (1991) identified the availability of dense concentrations of calanoid copepods as the "bottom line" for right whales in the northwest Atlantic. Inadequate prey availability and/or competition for prey with other planktivorous animals has also been suggested by Mitchell (1975), Reeves *et al.* (1978) and NMFS (1991a) as one possible factor in the lack of recovery of this species.

Mortality: Anthropogenic causes of right whale mortality are discussed in detail in Kraus (1990) as well as in NMFS (1991a). Ship collisions and entanglements are the most common direct causes of mortality identified through right whale strandings. Twenty percent of all right whale mortalities observed between 1970 and 1989 were caused by vessel collisions/interactions

with right whales. An additional 8 percent of these mortalities are suspected to have resulted from vessel collision. Seven percent of the population exhibit prop-wound scars indicating additional, non-lethal vessel interactions. An estimated 19 percent of all vessel/right whale collisions are lethal (Kraus, 1990). About 57% of all right whales show evidence of entanglement in fishing gear; of these, an estimated 4.3 percent were fatal (Kraus, 1990). Stranding data suggest that one-third of all right whale mortality results from either vessel collision or entanglement (Kraus, 1990). Including known neonatal mortality and all other sources, 27 percent of all right whales die before reaching age four (Kraus, 1990); thus over a fourth of the population is prevented from reaching maturity.

As a result of the potential for interactions between vessels and right whales from December through March in the calving area off Georgia and northern Florida, aerial surveys funded by the U.S. Army Corps of Engineers, Navy and USCG have been implemented as the right whale early warning system. These surveys are conducted to identify the occurrence and distribution of right whales in the vicinity of ship channels in the winter breeding area, and to notify nearby vessel operators of whales in their path. For the same reason an early warning system has been established in waters off New England during January through June when right whales aggregate in and around the Cape Cod Bay and Great South Channel critical habitat areas.

Whales observed on aerial and shipboard surveys are individually identified and counted, cow/calf pairs are recorded, and the movements and distribution of the whales are noted. Speeds of hopper dredges working in these channels are reduced to 5 knots or less during evening hours or periods of low visibility for 24 hours after sightings of right whales within 10 nm of the channel or disposal areas.

Data collected during these surveys indicate that right whales are observed off Savannah, Georgia, in December and March, and are relatively abundant between Brunswick, Georgia, south to Cape Canaveral from December through March. In early 1995, a whale believed to be a right whale was also observed by shipboard observers off Morehead City, North Carolina.

Habitat degradation is cited as a potentially important factor affecting the recovery of the northern right whale (NMFS, 1991a). The Northern Right Whale Recovery Plan (NMFS, 1991a) indicated that disposal of terrestrially generated pollutants into Massachusetts and Cape Cod Bays could slow the recovery of the species.

Another factor possibly inhibiting recovery of the right whale population is inbreeding depression. Scaeff *et al.* (1993) determined through genetic analyses that western North Atlantic right whales probably represent a single breeding population based on three matriline.

Right Whale Critical Habitat

There are five well-known habitats used annually by right whales, including 1) coastal Florida and Georgia, 2) the Great South Channel, east of Cape Cod, 3) Cape Cod and Massachusetts Bays, 4) the Bay of Fundy and, 5) Browns and Baccaro Banks, south of Nova Scotia. The first three areas occur in U.S. waters and have been designated by NMFS as critical habitat (59 FR, 28793, June 3, 1994).

The nearshore waters of northeast Florida and southern Georgia were first identified as a likely calving and nursery area for right whales in 1984. Since that time, Kraus *et al.* (1993) documented the occurrence of 74 percent of all the known mature females from the North Atlantic population in this area. While sightings off Georgia and Florida include primarily adult females and calves, juveniles have also been observed.

Habitat in the Great South Channel, Massachusetts and Cape Cod Bays are used for foraging, breeding, and nursing. Important habitat components include seasonal availability of dense zooplankton patches and protection from weather afforded by the land masses surrounding the bays. The coastal harvest of right whales discussed by Allen (1916), among others, illustrated the historical importance of the bay areas.

Actions that impact habitat elements identified as integral to critical habitat designation must come under the ESA Section 7 consultation procedures, regardless of the presence of right whales at the time of impacts. Therefore, any impacts to these areas that may affect prey availability and quality or nursery protection must be considered when analyzing whether habitat is adversely modified or destroyed.

Humpback Whale

New Information: the 1996 Biological Opinion on the USCG's vessel and aircraft operations did not update information on the status and trends of the humpback whale presented in the 1995 Biological Opinion on those operations. Since 1995, there has been new information on the status and trends of the humpback whale, although there are still insufficient data to determine the population trend for humpback whales (Waring *et al.* 1997).

In 1996, 3 humpback whales were killed in collisions with vessels. Another 6 humpback whales were seriously injured by entanglement in the same year. Three entanglements of humpback whales were reported in 1997: one in Gulf of Maine (GOM), one in Bay of Fundy, and one in the southeast region. The outcome of these entanglements are not known and a status/injury determination has not been made. Preliminary stranding records from January, 1997 through December, 1997 indicates 4 stranded/floating humpback whales in the Northeast Region (Maine - Virginia) (Hartley, pers comm). So far in 1998, one humpback whale was entangled and died off Ocracoke Island, North Carolina.

Rangewide status: the current rate of increase of the North Atlantic humpback whale population has been estimated at 9.0% (CV=0.25) by Katona and Beard (1990) and as 6.5% by Barlow and Clapham (1997). The minimum population estimate for the North Atlantic humpback whale population is 4,848; the best estimate of abundance is 5,543 (CV=0.16; Waring *et al.* 1997). However, Palsboll *et al.* (1997) studied humpback whales through genetic markers to identify individual humpback whales in the North Atlantic Ocean. Using breeding ground samples from 1992-1993, Palsboll *et al.* (1997) estimated the North Atlantic humpback whale population at 4,894 (95% confidence interval 3,374-7,123) males and 2,804 females (95% confidence interval 1,776-4,463). The authors noted that this total of 7,698 whales is substantially higher than the most recent photographic-based estimate (above).

The Humpback Whale Recovery Plan (NMFS, 1991b) contains information regarding humpback whale life history, distribution, and taxonomic parameters. Worldwide, humpback whales are thought to number between 10,000 and 12,000 individuals (Braham, 1991), down from in excess of 125,000 prior to exploitation. Humpback whales were commercially hunted from the seventeenth century into the twentieth century. At least 9,125 humpback whales were killed in the North Atlantic Ocean west of Iceland between 1850 and 1971 (Mitchell and Reeves, 1983).

Distribution: After calving and mating in warm waters of the Caribbean, whales return to five separate foraging areas, between latitudes of 42° N to 78° N. These feeding areas are (with approximate number of humpback whales in parenthesis): Gulf of Maine (400); Gulf of St. Lawrence (200); Newfoundland and Labrador (2,500); western Greenland (350); and the Iceland-Denmark strait (up to 2,000) (Katona and Beard 1990). The western North Atlantic stock is considered to include all humpback whales from these five feeding areas. Courtship groups in wintering areas contain whales from different feeding aggregations; therefore humpback whales from the western North Atlantic probably interbreed (Katona *et al.*, 1994).

Most of humpback whales that forage in the Gulf of Maine have also been observed at Stellwagen Bank and the waters of Massachusetts and Cape Cod Bays. Sightings are most frequent from mid-March through November between 41° N and 43° N, from the Great South Channel north along the outside of Cape Cod to Stellwagen Bank and Jeffreys Ledge (CeTAP, 1982), and peak abundance occurs in May and August. Small numbers of individuals may be present in this area year-round, including the waters of Stellwagen Bank. Weinrich (1998) noted that a humpback whale mother and calves use of local and regional feeding areas may provide a tool for predicting future regional habitat use.

Until recently, humpback whales observed off the mid- and south-Atlantic coastal U.S. were considered transients. Few were seen during aerial surveys conducted over a decade ago (Shoop *et al.*, 1982). However, since 1989, sightings of feeding juvenile humpback whales have increased along the coasts of Virginia and North Carolina, peaking from January through March in 1991 and 1992 (Swingle *et al.*, 1993). Studies conducted by the Virginia Marine Science Museum indicate that these whales are feeding on, among other things, bay anchovies and menhaden. Researchers theorize that juvenile humpback whales, which probably do not participate in reproductive behavior in Caribbean waters, may be establishing a winter foraging area off mid-Atlantic coastal states (Mayo, *pers. comm.*). The lack of sightings south of the Virginia Marine Science Museum study area may be a function of shipboard sighting effort, which was restricted to waters surrounding Virginia Beach, Virginia.

Shipboard observations conducted during daylight hours during dredging activities in the Morehead City Harbor entrance channel during January and February 1995 resulted in sightings of young humpback whales on at least six days near the channel and disposal area, through January 22, 1995. Three humpback whale strandings were documented in North Carolina in that year, one each in February, March, and April, suggesting that humpback whales remained in waters off the southeastern U.S. through April.

Reproduction and Calving: Katona and Beard (1990) summarized information gathered from a catalogue of photographs of 643 individuals from the western North Atlantic population of

humpback whales. These photographs indicated that reproductively-mature western North Atlantic humpback whales winter 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 (NMFS, 1991). In general, it is believed that calving and reproductive behavior take place in the winter range. Calves are born from December through March and are about 4 meters at birth. Sexually mature females give birth every 2 to 5 years. Humpback whales become sexually mature between 4 and 6 years of age for females and between 7 and 15 years for males. At maturity, humpback whales average about 12 meters in length.

Nursery: Clapham and Mayo (1987) studied the reproduction and recruitment of humpback whales in Massachusetts Bay between 1979 and 1985. During this period, cows and calves occurred in the Bay as early as April. Apparent nursing behavior has been observed, although this could not be verified. Calves were observed feeding, or attempting to feed, on sand lance by late July. Clapham and Mayo (1987) reported that 44 adult females were identified with 72 calves, including 20 females which returned with calves more than once during their 1979-1985 study period. Cows with calves were seen from one to 62 times during a year, with a mean of 18.5 occurrences. This was significantly higher than cows without calves, which were seen from one to 45 times with a mean of 10.1 times. This difference in occurrence of cows with and without calves indicates Massachusetts Bay may provide important nursery habitat to humpback whales. This is supported by Goodale's (1981), observation of a significant difference in mean depth of water where calves were sighted as compared to water depths associated with sightings of mature animals without calves. Of the 49 calves born prior to 1985, 75.5 percent returned in one or more years after separation from the cow, indicating that an affinity for foraging areas may be determined maternally.

Foraging: Generally humpback whales feed in summering areas. Overholtz and Nicolas (1979) observed humpback whales apparently feeding on American sand lance in 1977 on Stellwagen Bank. Since that time, sand lance have been identified as the major prey species for humpback whales in Massachusetts and Cape Cod Bays. Payne *et al.* (1986) described the correlation between the decline of herring stocks from the mid-1960s through the mid-70s and the resultant increase in stocks of sand lance and the shift in humpback whale distribution from the northern to the southwestern Gulf of Maine, including Stellwagen Bank. Payne *et al.* (1986) identified a relationship between the observed number of humpback whales and the number of sand lance relative to sharp bathymetric relief such as those found in the Great South Channel and at Stellwagen Bank. They suggested humpback whales follow the Great South Channel north to the Gulf of Maine until they reach concentrations of sand lance off Cape Cod or on Stellwagen Bank. Concentration of sand lance in response to their zooplankton prey found near the surface in areas of high bottom relief provide an energetically efficient source of prey for the whales when compared to feeding at depth.

Sand lance were virtually absent from Massachusetts Bay in the summers of 1986 and 1987 (Payne *et al.*, 1990). As a result, copepods were abundant and were associated with longer residence and more frequent occurrences of right whales in the Bay, as well as the rare occurrence of blue and sei whales, which also feed on zooplankton. Payne *et al.* (1990) identified the effect of shifts in herring, mackerel, and sand lance abundance on the distribution

and abundance of humpback whales, right whales, and other species in the southern Gulf of Maine.

Mortality: The Humpback Whale Recovery Plan (NMFS, 1991b) identified entanglement and ship collisions as potential sources of mortality, and disturbance, habitat degradation, and competition with commercial fisheries as potential factors delaying recovery of the species.

Volgenau and Kraus (1990) identify entanglement in fishing gear as a threat to the recovery of the Gulf of Maine humpback whale subpopulation. An average of four to six entanglements of humpback whales a year occur in waters of the southern Gulf of Maine. An entanglement database maintained by NMFS NE Regional Office contained 64 records of entangled or injured humpback whales from 1975-1992. Humpback whales also become entangled offshore. On January 18, 1993, a dead juvenile humpback was observed entangled in a swordfish drift net along the 200m isobath northeast of Cape Hatteras. Entangled animals are often released, although some dead or injured animals likely go unobserved and unreported. Occasionally, "floaters" are encountered at sea (NMFS, unpublished data).

Swingle *et al.* (1993) identify a shift in distribution of juvenile humpback whales in the nearshore waters of Virginia, primarily in winter. Whales using this mid-Atlantic area that have been identified have also been observed in the Gulf of Maine feeding group, suggesting a shift in distribution that may be related to winter prey availability. In concert with the increase in mid-Atlantic whale sightings, strandings of humpback whales have increased between New Jersey and Florida since 1985. Strandings were most frequent from September through April in North Carolina and Virginia waters, and were composed primarily of juvenile humpback whales of no more than 11 meters in length (Wiley *et al.*, 1995). Six of 18 humpback whales (33 percent) for which the cause of mortality was determined were killed by vessel strikes. An additional humpback had scars and bone fractures indicative of a previous vessel strike that may have contributed to the whale's mortality. Sixty percent of those mortalities that were closely investigated showed signs of entanglement or vessel collision (Wiley *et al.*, 1993).

Humpback whale entanglements occur in relatively high numbers in Canadian waters. Reports of collisions with fixed fishing gear set for groundfish around Newfoundland averaged 365 annually from 1979 to 1987 (range 174-813). An average of 50 humpback whale entanglements (range 26-66) were reported annually between 1979 and 1988 and 12 of 66 humpback whales that were entangled in 1988 died (Lien *et al.*, 1988).

Observers on dredges have documented close approaches between whales and dredges. On February 6, 1988, a right whale reacted to the approach of a hopper dredge within 100 yds by orienting itself toward the vessel. On February 28, 1988, during clamshell dredging of Canaveral channel, a right whale remained in the Canaveral channel for a period of about 10 minutes; fortunately, during daylight hours and when no vessels were transiting the channel. On January 12, 1995, a humpback whale was observed within a quarter of a mile of the dredge at Wilmington channel and resurfaced near the dredge. On January 13, 1995, a humpback whale was observed ahead of the dredge initially, but resurfaced near the stern after the vessel slowed. Dredging was stopped while this whale and two other humpback whales nearby approached within 100 yds, including one passage under the bow. On January 18, still within the

Wilmington Harbor channel dredging area, one of a few humpback whales observed feeding surfaced and quickly dove again within 10 meters of the dredge. These incidents illustrate the potential for collisions between whales and vessels in coastal waters.

NMFS believes that cooperation of vessel operators with trained lookouts or endangered species observers reduces the likelihood of whales being harmed by whale/vessel interactions. In concert with aerial surveys conducted in right whale critical habitat during the breeding season, the use of trained lookouts or endangered species observers, the adoption by vessel operators of necessary precautions when whales are sighted, and reduction in vessel speed during evening hours or days of limited visibility when whales have been spotted within the previous 24 hours, are necessary precautions that reduce the likelihood of vessel collisions with endangered whales.

Geraci *et al.* (1989) identified bioaccumulation of the neurotoxin responsible for paralytic shellfish poisoning (saxitoxin) in mackerel consumed by humpback whales as the possible cause of 14 humpback whales deaths observed between November, 1987 and January, 1988. No saxitoxin was identified in plankton or shellfish sampled in Massachusetts waters at the time of the mortality. The authors suggest the neurotoxin could have been transported by mackerel obtaining the toxin from planktonic sources in the Gulf of St. Lawrence, the spawning ground for mackerel. While a similar multiple mortality of large whales has not been observed, the authors suggest individual mortalities caused by the biotoxin would go unnoticed. The reason for the multiple mortalities in the winter of 1987 and 1988 has not been explained, although they may have been related to a shift in the normal diet of humpback whales due to the lack of sand lance in the bays the previous summer.

Fin Whale

New information: neither the 1995 or 1996 Biological Opinions on the USCG's vessel and aircraft operations updated information on the status and trends of the fin whale. Of 18 fin whale records collected between 1991 and 1995, four mortalities were associated with ship collisions, boat strikes, or propellor scars, although the proximal cause of mortality was not known. In 1996, another three fin whales were struck by ships, the collision was confirmed as the cause of death for one of these whales.

Five fin whales have been reported as entangled in fishing gear in 1997. One of the whales stranded live in August in Eastham, Massachusetts. The animal was emaciated and line marks were visible. The fate of the other animals is unknown; they were seen trailing line and polyballs. One of the whales was disentangled by the Center for Coastal Studies and all gear was removed from the whale. Four finback whales were reported as having stranded (preliminary data summary--Hartley, *pers. comm.*) in the period from January 1, 1997 to January 1, 1998 in the Northeast Region. The cause of death was not determined for these whales.

Rangewide status: The fin whale is considered one of the more abundant large whale species, with a worldwide population estimate of 120,000 (Braham, 1991). The fin whale was a prime target for commercial whaling after the Norwegian development of the explosive harpoon in 1864. North Atlantic stocks were heavily fished and because these stocks were relatively small, they were quickly depleted.

Braham (1991) indicated that although fin whales are abundant compared to other stocks, they remain depleted relative to historic levels. Only a few thousand are believed to exist in the North Atlantic (Gambell, 1985). Current estimates for fin whales found in the northwest Atlantic are not available, although CeTAP (1982) estimated 5,423 fin whales occurred in the waters between Cape Hatteras and the Bay of Fundy in the spring, more than half of which (2,788) occur in the Gulf of Maine.

The most recent marine mammal stock assessment reports (Waring *et al.*, 1997) continue to use CeTAP (1982) data as the best available. A population estimate based on an inverse variance weighted pooling of CeTAP (1982) spring and summer data is 4,680 fin whales (CV = 0.23) and includes a dive-time correction factor of 4.85 but does not correct for the probability of detecting an animal along a trackline. An average for these two seasons was chosen because the greatest proportion of the population off the northeast U.S. coast appears to be in the CeTAP study area in these seasons. However, this estimate is highly uncertain because the data are a decade old, and values were estimated just after cessation of extensive foreign fishing operations in the region. Waring *et al.* (1997) noted that between Cape Hatteras and Nova Scotia fin whales are the dominant cetacean species in all seasons.

Distribution: During summer in the western North Atlantic, fin whales have been observed along the North American coast to the Arctic and around Greenland. The wintering areas extend from the ice edge southward to the Caribbean and Gulf of Mexico. They are widely distributed in the Gulf of Maine, and may stay in the region through the winter. Fin whales in the Gulf of Maine concentrate in the area extending from the southern base of the Great South Channel, northwest along the 50 fathom contour into the southwestern Gulf of Maine over Stellwagen Bank, to Jeffreys Ledge. Sightings are most numerous in spring and summer with peaks in May and July and occur at Jeffreys Ledge, Stellwagen Bank and the Great South Channel.

Seipt *et al.* (1990) discussed characteristics of the population of fin whales in Massachusetts Bay as observed through the photo-identification of individuals between 1980 and 1987. During that period, 156 individuals were identified. Ninety-eight were observed more than once, including 70 that were observed in more than one year. The authors suggest this information indicates that the occurrence and annual return of individual fin whales is similar to that observed for humpback whales as discussed above. They conclude that fin and humpback whales in high latitudes are distributed according to the occurrence of their prey, and return repeatedly to consistently productive habitats such as Jeffreys Ledge, Stellwagen Bank, and Massachusetts Bay. As suggested by Kenney *et al.* (1986) and Payne *et al.* (1990), regarding right and humpback whales, such a strategy would be energetically efficient.

Fin whales are often observed in mid-Atlantic waters, although nearshore observations off Virginia were unreported until recently. Some fin whales were observed off the Delmarva Peninsula during aerial surveys conducted over a decade ago (Shoop *et al.*, 1982). However, since 1989, sightings of feeding juvenile fin whales have increased along the coast of Virginia in the same area as the humpback whales mentioned above (Swingle, *pers. comm.*). Fin whales are more difficult to study than humpback whales due to their speed, relatively lower abundances, and more pelagic distribution; however, they are believed to be feeding with the humpback whales, on bay anchovies and menhaden.

Foraging: Fin whales in the North Atlantic feed on herring, cod, mackerel, pollack, sardine, and capelin, as well as squid, euphausiids, and copepods. In the 1970s and 80s, fin whales were observed feeding primarily on sand lance, in proximity to humpback whales (Overholtz and Nicolas, 1979; Payne *et al.*, 1990). Bigelow and Schroeder (1953) reported fin whales feeding on sand lance that were abundant in Cape Cod Bay in 1880. Effects of the abundance of finfish on the distribution of fin whales are similar to those discussed above for humpback whales. Changes in fin whale distribution have not been as distinct as those observed for humpback whales, suggesting greater success at exploiting alternative prey species.

Reproduction: The peak months for breeding are December and January in the Northern Hemisphere. A single calf averaging about 6 meters in length is produced after a gestation period of a little more than 11 months. Fully mature females may calve about every 2 to 3 years. In the Northern Hemisphere, females become sexually mature at a length of 18.3 meters and males at about 17.7 meters. Although fin whales are sometimes found singly or in pairs, they commonly form larger groups of 3 to 20 which may in turn coalesce into a broadly spread concentration of a hundred or more individuals, especially on the feeding grounds (Gambell, 1985). Based on studies of photographically-identified fin whales, Agler *et al.* (1993) estimated the gross annual reproduction rate at 8%, with a mean calving interval of 2.7 years.

Mortality: At least two fin whales died in association with the 1987-1988 multiple mortality of humpback whales, the cause of which has been linked to ingestion of mackerel that had concentrated neurotoxin from plankton (Geraci *et al.*, 1989). Lambertson (1986) identified the occurrence of the nematode *Crassicauda* in fin whales taken in whaling efforts off Iceland, and describes the associated pathology. Known and theorized anthropogenic effects on recovery of fin whales are similar to those discussed above for humpback whales.

D. Environmental Baseline

Environmental baselines for Biological Opinions include the past and present impacts of all state, Federal or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process (50 CFR §402.02). The environmental baseline for this Biological Opinion includes the effects of several activities that affect the survival and recovery of threatened and endangered species in the action area. The activities having the greatest impact on the environmental baseline generally fall into three categories: vessel operations, fisheries, and recovery activities associated with reducing those impacts. Less direct, habitat related impacts include effects of discharges, dredging, ocean dumping, and aquaculture.

In the past four years, NMFS has undertaken several ESA section 7 consultations to address the effects of vessel operations and gear associated with federally-permitted fisheries on threatened and endangered species in the action area. Each of those consultations tried to develop ways of reducing the probability of impacts of the action on large whales and sea turtles. Similarly, recovery actions NMFS has initiated under both the MMPA and the ESA have also tried to develop ways of reducing the probability of large whales being taken in fisheries and by vessels.

(1) *Vessel Operations* Impacts from vessels in the action area of this consultation include federal vessel operations of the U.S. Navy (USN) and the USCG, which operate the largest fleets, the Environmental Protection Agency, and National Oceanic and Atmospheric Administration (NOAA) and the Army Corps of Engineers. NMFS has conducted formal consultations with the USCG, the USN (described below) and is currently in early phases of consultation with the other federal agencies on their vessel operations. Some of the COE vessel operations are already covered by formal consultation on the dredging portion of their activity. Through the section 7 process, where applicable, NMFS has and intends to continue to establish conservation measures for all these agency vessel operations to avoid impacts to listed species, but at the current time, they represent potential for some level of interaction.

USCG Vessel operations. On September 15, 1995, NMFS issued a Biological Opinion on USCG Vessel and Aircraft Operations. On July 22, 1996, NMFS issued a second Biological Opinion on these operations because of a suspected whale strike by a USCG vessel shortly after the first Biological Opinion was issued. Those Biological Opinions recommended 10 major actions (as either reasonable and prudent alternatives or conservation recommendations) that the USCG could take to avoid the likelihood of its vessel operations jeopardizing the continued existence of the northern right whale. In compliance with the reasonable and prudent alternatives that, if enacted, would avoid the likelihood of jeopardizing the continued existence of the northern right whale, the USCG posts trained, dedicated lookouts on vessels, issues speed guidance for USCG vessels, issues approach guidance for USCG vessels, and provides information on threatened and endangered species to commercial and recreational vessel operators (a detailed review of the USCG's implementation of the reasonable and prudent alternatives and conservation recommendations of the 1995 and 1996 Biological Opinions is provided in Appendix B. Appendix C provides updated guidance criteria for sightings, Early Warning System, and disentanglement for the First District). In addition, as a result of these two Biological Opinions, the USCG developed and implemented an Atlantic Protected Living Marine Resources Initiative (APLMRI) which includes efforts to modify USCG vessel and aircraft operations to reduce possible take of the northern right whale, particularly in its critical habitat off the Georgia/Florida coastline and critical habitats in the Great South Channel and Cape Cod Bay, Massachusetts. The APLMRI was adopted less than one year ago and its measures extend beyond the reasonable and prudent alternatives of the Biological Opinions issued by NMFS. The USCG provides support for disentanglement efforts, Early Warning System, sighting information, retrieval of floating whale carcasses for necropsy, coordinates an oil spill response network that incorporates important protocols for endangered species, and has been an active participant in working with the shipping community to increase awareness of protected species issues.

US Navy Vessel Operations, Mayport. On May 15, 1997, NMFS issued a Biological Opinion on U.S. Navy Operations out of Mayport, Florida. U.S. Navy operations out of Mayport, Florida and Kings Bay, Georgia, occur in the Action Area, although NMFS does not know the exact number of vessels involved in these operations. Since the July 22, 1996, Biological Opinion that was issued to the USCG, the Navy has initiated a number of mitigation measures with respect to their Mayport operations designed to protect right whales. Because of these mitigation measures, NMFS' May 15, 1997, Biological Opinion on Navy operations out of Mayport, Florida concluded that these operations were not likely to jeopardize the continued existence of

endangered or threatened species under NMFS' jurisdiction (for additional information, see NMFS 1997b).

Private and Commercial Vessels. In addition to the federal vessel operations, private and commercial vessels operate in the action area of this consultation and also have the potential to interact with whales and sea turtles. For example, shipping traffic in Massachusetts Bay is estimated at 1,200 ship crossings per year with an average of 3 per day. More than 280 commercial fishing vessels fish on Stellwagen Bank in the Gulf of Maine and sportfishing contributes more than 20 vessels per day from May to September. And this is just one area within the scope of this consultation which is also a high use area for many species of whales. In addition to commercial traffic and recreational pursuits, private vessels participate in high speed marine events that are concentrated in the southeastern US that are a particular threat to sea turtles. The magnitude of these marine events is not currently summarized; NMFS and the USCG have initiated consultation on these events, but that consultation has not been completed.

Education and outreach are considered one of the primary tools to reduce the threat of impact from private and commercial vessels. The USCG has provided education to mariners on whale protection measures and uses their platforms such as radio broadcasts and notice to mariner publications to alert the public to potential whale concentration areas. They are also participating in international activities (discussed later) to decrease the potential for commercial shipping traffic to strike a whale.

In addition to the ESA measures for federal activities mentioned above, numerous recovery activities are being implemented that are aimed at decreasing the level of impacts from private and commercial vessels in the action area and during the time period of this consultation. These include the early warning system (EWS), Northeast Recovery Plan Implementation Team for the Right Whale Recovery Plan (NEIT), Southeast Recovery Plan Implementation Team for the Right Whale Recovery Plan (SEIT), and NMFS regulations.

Early Warning System. The existing EWS in the Northeast began surveying the Cape Cod Bay (CCB) and Great South Channel (GSC) critical habitats from January through July 1997 by aerial and surface platforms, with right whale sightings information coordinated and processed by NMFS. Sightings for each survey day were plotted in an ARC/INFO-based GIS program, disseminated by an automated fax system immediately after processing to cooperators, and made available to all marine resource users through various media. The coordinates of the right whale sightings were broadcast for 24 hours by USCG via Broadcast Notice to Mariners and NAVTEX, NOAA Weather Radio, and Army Corps of Engineers Traffic Controllers at Cape Cod Canal to both target shipping traffic as well as other marine resource users. Maps with right whale sightings boxes were also posted on Massachusetts and NMFS web pages and linked to other sites. A NMFS Inquiry Line at the Northeast Region provided right whale sighting faxes on demand to all interested callers. During the 1997 EWS season, additional cooperators from the Navy and MASSPORT (the Boston Port Authority) were involved in planning and supporting network operations.

The EWS in the northeastern U.S. will be expanded to off-season times and areas to provide similar services to both shippers and fishermen. NMFS has the ability under the ESA to impose emergency regulations which may be used to protect unusual congregations of right whales in these off-season periods. However, by providing these sightings reports to fishermen, they can make necessary adjustments in fishing practices to avoid the potential of entanglements. Massachusetts was a key collaborator in the FY-97 effort and has developed a plan to expand the effort in their waters. The USCG has played a key role in this effort all along and their continued cooperation is expected throughout. They have provided both air and sea support. The State of Maine has expressed interest in taking part in this type of EWS along the coastal regions of the State. It is expected that other potential sources of sightings such as the US Navy may become involved in this effort following NMFS commitment to support the EWS over the long term.

An EWS has been operational in areas of the southeastern U.S. for several years. This system identifies the known location of right whales within and adjacent to the winter calving area from Savannah, Georgia, to Sebastian Inlet, Florida, from December 1 through May 31 and provides this information to mariners. This system has successfully diverted shipping to avoid right whales on several occasions, thus decreasing the threat of vessel collisions.

Northeast Recovery Plan Implementation Team for the Right Whale Recovery Plan. In order to address the items, including ship strikes, described in the Right Whale and Humpback Whale Recovery Plans NMFS established the Northeast Recovery Plan Implementation Team for those Recovery Plans (later re-named the Northeast Large Whale Implementation Team). The Recovery Plans describe human activities that may affect both right and humpback whales, describe steps to reduce the impacts to levels that will allow the two species to recover, and rank the various recovery actions in order of importance. The NEIT provides advice to the various federal and state agencies or private entities on achieving these national goals within the Northeast Region. The NEIT agreed to focus on habitat and vessel related issues and rely on the take reduction planning process under the MMPA for reducing takes in commercial fisheries (discussed in the fisheries section below)

As part of NEIT activities, a Ship Strike Workshop was held in December 1996 that provided a way to inform the shipping community of their need to participate in efforts to reduce the northern right whale ship-strike mortality concerns. In addition, research was summarized on current efforts to use new shipboard and moored technologies as deterrents and a report was given on ship design studies currently being conducted by the New England Aquarium and Massachusetts Institute of Technology. This workshop increased awareness among the shipping community and has further contributed to reducing the threat of ship strikes on right whales. In addition, a Cape Cod Canal Tide Chart was distributed widely to professional mariners and ships passing through the canal that included information on critical habitat areas and the need for close watch during peak right whale activity. A radio warning transmission was also transmitted by Canal traffic managers to vessels transiting the Canal during peak Northern right whale activity periods. Follow-up meetings were held with New England Port Authority and pilots to notify commercial ship traffic to keep a close watch during peak right whale movement periods.

Southeast Recovery Plan Implementation Team for the Northern Right Whale. In 1993, NMFS formed the Southeast Implementation Team for the Right Whale Recovery Plan, which is a companion to the NEIT, to address the goals of the Right Whale Recovery Plan within NMFS' Southeast Region. The recovery plan has identified entanglement in fishing gear and ship collisions as the two major direct human impacts affecting both species. Habitat degradation through pollution or other major habitat alteration processes caused by either human sources (discharge or disposal in the marine environment) or resource management activities (fishery or minerals management) is also identified as a major indirect impact requiring attention.

500 yard Approach Regulation. As part of recovery actions aimed at reducing vessel related impacts, NMFS published a proposed rule in August 1996 restricting vessel approach to right whales (61 FR 41116) with the goal of minimizing human-induced disturbance. The Recovery Plan for the Northern Right Whale identified disturbance as one of the principal human-related factors impeding right whale recovery (NMFS 1991a). Following public comment, NMFS published an interim final rule in February 1997 codifying the regulations. With certain exceptions, the rules prohibit both boats and aircraft from approaching any right whale closer than 500 yds. Exceptions for closer approach are provided when (a) compliance would create an imminent and serious threat to a person, vessel, or aircraft; (b) a vessel is restricted in its ability to maneuver around a 500 yard perimeter of a whale; (c) a vessel is investigating or involved in the rescue of an entangled or injured right whale, or (d) the vessel is participating in a permitted activity, such as a research project. If a vessel operator finds that he or she has unknowingly approached closer than 500 yds, the rules require that a course be steered away from the whale at slow safe speed. Exceptions are made for emergency situations and where certain authorizations are provided. In addition, all aircraft, except those involved in whale watching activities, are excepted from these approach regulations. The regulations are consistent with the State of Massachusetts' approach regulations for right whales.

IMO Initiative. In April 1998, the USCG submitted, on behalf of the United States, a proposal to the International Maritime Organization (IMO) requesting approval of a mandatory ship reporting system in two areas off the east coast of the United States. The USCG worked closely with NMFS and other agencies on technical aspects of the proposal. The proposal was submitted to the IMO's Subcommittee on Safety and Navigation for consideration and submission to the Marine Safety Committee at IMO. The proposal likely will be approved by the IMO, and, if approved, the reporting system will be implemented by mid-1999. The USCG will have an important role in helping implement the system.

Summary. The potential for vessels to adversely affect whales and sea turtles remain throughout the action area of this consultation. However, recovery actions have been undertaken since the 1996 Biological Opinion, as described, and continue to evolve that have, and are expected to prevent additional impacts and reduce the overall impacts from vessel operations in the environmental baseline in coming years.

Fishery Operations. Impacts from certain types of fishing gear on threatened and endangered species occur in the Action Area. This includes both state and federal fisheries. Efforts to reduce impacts from commercial fisheries are addressed through both the MMPA take reduction planning process (state and federal fisheries) and the ESA section 7 process (federally permitted

fisheries). Gillnet, longline, trawl gear, and pot/trap fisheries have all been documented as interacting with either whales or sea turtles or both. For all fisheries for which there is a federal fishery management plan (FMP) or for which any federal action is taken to manage that fishery, impacts have been evaluated under Section 7 and these are summarized below. Very little is known about the level of fishery interactions with fisheries that operate strictly in state waters. However, NMFS is actively participating in a cooperative effort by the Atlantic States Marine Fisheries Commission to evaluate bycatch in state fisheries. In addition, NMFS is undergoing an intensive effort to compile and verify historical data on fishery interactions with whales that expected to be available in early 1999.

Fisheries for which formal biological opinions have been issued that interact with whales/and or sea turtles include the American Lobster Fishery, the Northeast Multispecies Sink Gillnet Fishery, Atlantic Pelagic Fishery for Swordfish, Tuna, and Sharks, Summer Flounder, Scup, and Black Sea Bass Fishery and the Weakfish Fishery. These are summarized below, but for more detailed information refer to the respective Biological Opinions.

The American Lobster Fishery. The American Lobster Fishery includes approximately 2,000 federal and 14,000 state permit holders that use single traps, pair traps, multiple trawls, and otter trawls. All of these permit holders may not be actively fishing. This is a Category I fishery under the MMPA criteria. This fishery was evaluated under the MMPA TRP process and is subject to certain closures, gear modification requirements, and other restrictions designed to reduce interactions with large whales as a result of emergency regulations and implementation of the Atlantic Large Whale Take Reduction Plan. NMFS reviewed this fishery under Section 7 on March 23, 1994 and again on December 13, 1996.

The Biological Opinions concluded that gear associated with the lobster fishery has resulted in the death or serious injury of northern right whales and humpback whales. Preliminary data indicate that for northern right whales, one was killed and four seriously injured between 1988 and 1996 and for humpback whales, 14 were injured between 1988 and 1996 (NMFS Biological Opinion, 1996). These data are currently undergoing rigorous verification. This fishery has also been known to take leatherback sea turtles (45 between 1983 and 1993).

The December 13, 1996, Biological Opinion concluded that fishing under the FMP, including anticipated management actions over the next six months, were likely to jeopardize the continued existence of the northern right whale, but were not likely to jeopardize any other endangered or threatened species under NMFS jurisdiction. As a result of this Biological Opinion, NMFS published an emergency regulation under the authority of the Marine Mammal Protection Act (Emergency Interim Final Rule, 62 FR 16108) that restricted the use of lobster pot gear in the federal portion of the Cape Cod Bay right whale critical habitat from April 1, 1997, through May 15, 1997, and in the Great South Channel right whale critical habitat from April 1, 1997, through June 30, 1997. Similar measures were implemented in the interim final rule for the ALWTRP that keeps these closures in effect until gear modifications or alternative fishing practices that minimize the risk of entanglement or reduce the likelihood that an entanglement will result in serious injury or mortality are developed or approved. Consultation on this fishery is currently undergoing reinitiation to address significant changes in management of the fishery. These changes are generally expected to result in a reduction in fishing effort overall.

In addition to the protective measures to prevent interaction of the lobster fishery with sea turtles and marine mammals provided for through the ESA process, the Atlantic Large Whale Take Reduction Plan was prepared under the MMPA to address problems resulting from fishery interactions with large whales. To implement the plan, NMFS established an Atlantic Large Whale Take Reduction Team to draft a take reduction plan. The Atlantic Large Whale Take Reduction Plan includes (a) gear research to minimize or eliminate entanglement threats to be evaluated by gear experts prior to mandatory use; (b) outreach for fishermen and the fishing industry, (c) a disentanglement network, and (d) an early warning system (described earlier). During 1996 and 1997 the enhanced disentanglement network already resulted in whales being successfully disentangled on a number of occasions. This network will be expanded throughout the action area of this consultation in 1998 and 1999 and is expected to continue to improve our response to entangled whales, reducing potentially life threatening entanglements to non-serious situations.

Northeast Multispecies Sink Gillnet Fishery. The Northeast Multispecies Sink Gillnet Fishery is one of the other major fisheries in the action area of this consultation that is known to entangle whales and sea turtles. This fishery has historically occurred along the northern edge of the Action Area for this Biological Opinion from the periphery of the Gulf of Maine to Rhode Island in water to 60 fathoms. In recent years, more of the effort in this fishery has occurred in offshore waters and into the Mid-Atlantic. Participation in this fishery declined from 399 to 341 permit holders in 1993, and is expected to continue to decline. The fishery operates throughout the year, but peaks in the spring and from October to February. Data indicates that gear used in this fishery has seriously injured northern right whales, humpback whales and loggerhead and leatherback sea turtles. Waring et al. (1997) reports that 17 serious injuries or mortalities of humpback whales from 1991 to 1996 were fishery interactions (not necessarily multispecies gear), the majority of which indicated some kind of monofilament that like that used in the multispecies fishery. However, it is often difficult to assess gear found on stranded animals or observed at sea and assign it to a specific fishery. Consequently the level of interaction is difficult to determine. Six injuries of right whales have been attributed to some kind of gillnet (again, not necessarily multispecies gear) (NMFS Biological Opinion, 1996).

NMFS has issued 11 Biological Opinions on this fishery since 1986; the most recent Biological Opinion was issued on December 13, 1996. That Biological Opinion, concluded that the proposed actions under the Multispecies Fishery Management Plan were likely to jeopardize the continued existence of the northern right whale, but were not likely to jeopardize any other endangered or threatened species under NMFS jurisdiction. The reasonable and prudent alternatives were designed to be short-term measures and relied on a Take Reduction Team process to provide longer-term solutions when the plan was completed in July 1997.

As a result of the 1996 Biological Opinion on the Multispecies Fishery Management Plan, NMFS worked with the New England Fishery Management Council to reduce the possibility of entanglement of northern right whales in multispecies fishing gear by implementing gillnet closures to protect right whales in critical habitat (see Framework Adjustment 23 to the FMP under the authority of the Magnuson-Stevens Fishery Management and Conservation Act; 62 FR 15425). This rule closed federal waters to vessels fishing with sink gillnet gear and other gillnet gear capable of catching multispecies (with the exception of single pelagic gillnets) in parts of

the following right whale critical habitat areas: Cape Cod Bay from March 27, 1997, through May 15, 1997, and from January 1 through May 15 in subsequent years; and the Great South Channel from April 1 through June 30 annually. Concurrently, the Commonwealth of Massachusetts has prohibited gillnets from the designated right whale critical habitat in Cape Cod Bay within state waters from January 1 through May 15.

In addition to this change to protect right whales in their critical habitat, other closures are in effect under the multispecies plan are also likely to provide some increased protection for large whales and sea turtles. Framework 25 to the NE Multispecies Sink Gillnet FMP, which was implemented on May 1, 1998, is a series of new consecutive month-long closures in the Gulf of Maine starting in the Massachusetts Bay Area (March 01- March 30), and northern Massachusetts (April 01-30) and then two other areas on the Maine/New Hampshire coast for the months of May and June respectively. A year round closure in the Jeffrey's Ledge/ Stellwagen Bank area would be particularly protective of humpback and fin whales that often concentrate in that area throughout late spring and summer. Year round closures in the Nantucket Lightship Area and Closed Area I are not changed by Framework 25. The latter two would be expected to decrease potential interactions with other large whales during other times of the year.

Atlantic Pelagic Fishery for swordfish, tuna, and shark in the Exclusive Economic Zone.

Different components of this fishery have occurred within the entire Action Area for this Biological Opinion. Historically, gear used in this fishery has resulted in the take in the driftnet portion of the fishery of 5 endangered whales between 1986 and 1995 (1 northern right whale, 2 humpback whales, and two sperm whales). However, the right whale was previously entangled in lobster gear and it has since been determined that the driftnet entanglement was a non-serious injury since the whale was successfully disentangled from that gear. Sea turtles are entangled in both the longline and driftnet portion of the fishery. Out of 155 sets in 1995, 34 loggerheads, 27 leatherbacks and 1 Kemp's ridley were observed taken (20 turtles were dead); out of 98 sets in 1996 7 turtles were observed taken. Bycatch estimates from these observations numbers in the thousands and significant efforts are underway to evaluate gear and fishing practice modifications that will decrease the number of interaction in the longline fishery.

On May 29, 1997, NMFS issued a Biological Opinion on this fishery which concluded that continued operation of the driftnet component of these fisheries was likely to jeopardize the continued existence of the northern right whale primarily because of the southeastern Atlantic gillnet fishery for shark, but that it would not jeopardize the other ESA listed species that are impacted by this fishery. The shark fishery takes place when right whales are present in the calving grounds of their critical habitat off Georgia and Florida and there was evidence linking a right whale mortality with the shark driftnet fishery off the coast of Florida near Jacksonville. To avoid the likelihood of jeopardizing the continued existence of the northern right whale, the Biological Opinion recommended a closure of right whale critical habitat in the southeast to shark gillnet fishing. In addition, the Biological Opinion concluded that the mid-Atlantic component of this fishery which operated in winter/spring had the greatest potential of the northern components to interact with right whales because the fishery was operating on the shelf edge which is much closer to shore in the mid-Atlantic. The Biological Opinion also recommended closure of the winter fishery for swordfish, tuna, and sharks to protect right whales. Other recommendations included educational workshops for fishermen, implementation

of a limited access system, elimination of the derby nature of the northeast swordfish segment, and 100% observer coverage (an observed take would close the fishery).

NMFS has not decided what alternative will be implemented. The driftnet portion of the fishery has ceased operating under an emergency closure that began in December, 1996 which extended through May 31 and was subsequently extended for another six months. As mentioned earlier, NMFS prepared an amended Biological Opinion (August, 1997) to evaluate the effects of an updated Atlantic Ocean Cetacean Take Reduction Plan on endangered and threatened species. This amended Biological Opinion recommended closure of the mid-Atlantic (winter) fishery for swordfish, tuna, and shark. As a result of the conclusion of the Biological Opinion, NMFS issued a final rule under the ESA to close the fishery until July 31, 1998. Therefore, the fishery is currently not operating at least until August 1, 1998, when it may re-open. An extensive environmental assessment is being conducted to evaluate this fishery from both a fisheries and protected species perspective to determine what measures will be implemented for the longline fishery and whether or not the driftnet northeast swordfish segment will reopen in August.

Weakfish and Summer Flounder, Scup and Black Sea Bass Fisheries . These two fisheries have documented impacts on sea turtles (refer to the NMFS Biological opinions on these fisheries). Significant measures have been developed to reduce the take of sea turtles in summer flounder trawls and trawls that meet the definition of a summer flounder trawl (which would include fisheries for other species like scup and black sea bass) by requiring Turtle Excluder Devices in nets in the area of greatest bycatch off the north Carolina coast. NMFS is considering a more geographically encompassing regulation to require excluder devices in trawl fisheries that overlap with sea turtle distribution to reduce the impact from this fishery. Developmental work is also ongoing for a TED that will work in the flynets used in the weakfish fisheries. Some gillnet activity is associated with these fisheries that adds to the overall problem of whale entanglement in gillnets. The requirements of the large whale take reduction for gillnets would apply to these fisheries as well.

Other potential impacts in the baseline. A number of activities that may indirectly affect listed species in the action area of this consultation include discharges from wastewater systems, dredging, ocean dumping and disposal, and aquaculture. The impacts from these activities are difficult to measure. However, extensive monitoring is being required for a major discharge in Massachusetts Bay (Massachusetts Water Resources Authority) in order to detect any changes in habitat parameters, because it is located in close proximity to Massachusetts Bay. Close coordination is occurring through the Section 7 process on both dredging and disposal sites to develop monitoring programs and insure that vessel operators do not contribute to vessel-related impacts.

Aquaculture is currently not concentrated in whale high use areas, but some projects have begun in Cape Cod Bay Critical Habitat and in other inshore areas off the Massachusetts and New Hampshire coast. Acknowledging that the potential for impacts is currently unknown, NMFS is coordinating research to measure habitat related changes in Cape Cod Bay and is ensuring that these facilities do not contribute to the entanglement potential in the baseline through the section 7 process; many applicants have agreed to alter the design of their facilities to avoid lines to the surface that may entangle whales and/or sea turtles.

E. Effects of the Action

This section of a Biological Opinion assesses the direct and indirect effect of the proposed action on threatened and endangered species or critical habitat, together with the effects of other activities that are interrelated or interdependent (50 CFR 402.02). Indirect effects are those that are caused later in time, but are still reasonably certain to occur. Interrelated actions are those that are part of a larger action and depend upon the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration (50 CFR 402.02).

Northern Right Whale

Previous Biological Opinions on the USCG's vessel and aircraft operations assessed the effects of the USCG operations on the northern right whale population qualitatively by focusing on five items: the combined mortalities associated with an unusual mortality event in 1995-1996; the possibility that the northern right whale might have been experiencing a population decline; the potential biological removal figure for the northern right whale and its small population size; the lack of any measurable recovery progress for the northern right whale; and the cumulative sources of human-induced mortality. Based on these factors, in 1996, NMFS concluded that the USCG's Atlantic coast vessel and aircraft operations were likely to jeopardize the continued existence of the northern right whale.

The 1996 Biological Opinion provided the USCG with reasonable and prudent alternatives that, if implemented, would avoid the likelihood of jeopardizing the continued existence of the right whale. The USCG is either implementing or is in the process of implementing those reasonable and prudent alternatives and, therefore, has avoided the likelihood of jeopardizing the right whale associated with their Atlantic vessel and aircraft operations.

Based on the incident report and other information provided by the USCG, the interaction with the humpback whale in the summer of 1997 does not diminish the effectiveness of the programs the USCG has developed and implemented to significantly reduce the potential for USCG activities to impact large whales. This incident may have been compounded by individual decisions that did not directly follow the intent of the APLMRI which is to increase the degree of caution officers use when operating in an area and at a time when whales are abundant (e.g., not conducting a full power trial during a time of the year when whales are abundant in the Gulf of Maine).

This incident (as described in the *Incident Description* of this Biological Opinion) was a result of individual decisions that did not directly follow APLMRI directives and the USCG has taken appropriate steps to ensure that similar indiscretions will not happen again. USCG personnel are being educated on the importance of following the letter and intent of the APLMRI and being provided an account of this incident to prevent future re-occurrence.

NMFS is reasonably confident that the reasonable and prudent measures and conservation actions the USCG is implementing with their Atlantic operation avoid the likelihood of jeopardizing the northern right whale, as well as other whales. However, based on the operation of USCG vessels

in areas where whales are abundant and the fact that some situations cannot be avoided because of the animal's often unpredictable behavior, USCG vessels may, on occasion, affect large whales. In the past this amounted to an interaction every 2-5 years on various species, not always right whales. This rate of past occurrences were prior to initiation of the APLMRI and all the other recovery activities to which the USCG is a part. Therefore, NMFS expects the chance of future interactions, if any, to be less frequent as education, training and skills realize their full effectiveness among USCG personnel.

Multi mission upgrade. The Multi mission upgrade, which will become part of overall vessel operations, requires that aircraft and vessel operations considered in 1995 and 1996 be re-evaluated to assess the impacts of this change on previous determination (summarized above) with respect to USCG operations along the Atlantic Coast. One of the major effects of this upgrade is to replace vessels with cruising speeds between 22 and 13 knots (for 41-foot and 44-foot boats, respectively, that are currently deployed) with vessels rated at cruising speeds in excess of 25 knots. This vessel also provides greater stability and safety features that will allow the USCG to operate in more heavy surf conditions, thus enhancing search and rescue ability. While it is easy to see why these features enhance USCG search and rescue operations, these features may also make them more hazardous to whales. The USCG notes in the environmental assessment prepared for this action that the 47-foot MLB does pose a slightly greater risk to marine mammals and sea turtles where they co-exist along the Atlantic Coast from Florida to Maine. However, the USCG refers to internal District guidance on operational restrictions around endangered and threatened species as adequate to keep any additional impact to a minimum.

Deploying a larger number of vessels with 12 and 50% greater speed capacities will increase the potential for collisions of vessels with large whales, regardless of operational directives because most of these directives cannot be applied during search and rescue missions. The EA notes that 12 stations from Massachusetts and Maine, 7 stations in New York and New Jersey, 7 stations from Virginia, Maryland, and North Carolina, 13 stations in Florida, South Carolina, and Puerto Rico, and 8 stations in Texas, Mississippi, and Alabama will receive these upgrades. In the draft environmental impact statement on the APLMRI the USCG notes that it deploys 104 cutter class vessels (≥ 65 feet), but more than 240 total vessels. The USCG's Biological Assessment for the 1995 consultation describes the fleet as consisting of about 150 vessels that are in the range of 21-55 feet, under way 400 hr/v/yr--a relatively small component of operations compared to the patrol boats that see 1500-1800 hr/v/yr. Specifically, in Districts 1-8, there are 117/ 41-foot boats, 35/ 44-foot boats and 6/47-foot boats, which is a net change of 152 vessels that may be upgraded to the faster 47-footers.

The dredging associated with the multi-mission upgrade is minimal, occurring mostly in existing slips or under existing piers (see Table 2 of the EA) with bucket type dredges, and is consequently not likely to impact any endangered or threatened species under NMFS jurisdiction.

Considering potential additional effects of this action relative to what was evaluated in previous Biological Opinions, this action should not appreciably increase the overall effect of USCG vessel operations on northern right whales in the Action Area provided that COs adhere to current USCG guidance during non-emergency missions (i.e. not operating these vessels at maximum capacity (excess of 25 knots) during non-emergency transits). For this consultation,

NMFS assumes that the USCG will assure that all COs adhere to this directive; the USCG's response to the CGC *Campbell* incident is evidence of their intent to fully enforce this directive and supports this assumption. The change these vessels represent in hours of operation for search and rescue is a small component of overall operation when compared to the larger cutter class vessels. With this directive in place, the additional potential for impact does not change NMFS' overall conclusion on the effects of vessel and aircraft operations of the 1996 Biological Opinion.

Accommodating low flights and close approach by vessels for right whale sighting and surveillance work. The 1995 Biological Opinion assessed the effects of USCG aircraft traffic over critical habitat designated for the northern right whale based on an assumption that overflights of this critical habitat would occur at altitudes greater than 3,000 ft., which was provided in the USCG's Biological Assessment. Because of the 1995 Biological Opinion, USCG vessels were prohibited from approaching whales head-on during non-emergency operations, and from approaching right whales within 500 yds and all other whales within 100 yds.

On the other hand, the regulations that control approaching North Atlantic right whales (50 CFR Part 222.32) place no restrictions on aircraft unless the aircraft is conducting whale watch activities (although this regulation was meant to apply to commercial whale watching operations). NMFS asked the USCG to (a) provide sightings of whales, including photos and videos if possible, (b) participate in surveillance for the EWS, (c) assist in investigations of entangled animals, and (d) support disentanglement efforts, all of which require flights below 3,000 ft and vessel approaches within 500 yds. The rule does not prohibit approaches closer than 500 yard for "approaching to investigate a right whale entanglement or injury, or to assist in disentanglement or rescue of a right whale, provided that permission is received from NMFS or a NMFS designee prior to the approach." Therefore, even for this response, the USCG technically needs prior authorization. The USCG First District is currently authorized under the NEFSC scientific research permit for close approach to whales while conducting EWS surveys (NMFS letter, January 6, 1997).

In an August 21, 1997, letter to Dr. Andrew A. Rosenberg (Regional Administrator, Northeast Region, NMFS), the USCG noted that their law enforcement patrols are restricted from effectively sighting whales by these operational restrictions. Aircrews tend to avoid critical habitat areas so as not to be bound by its restrictions. This conflicts with the need for sighting information. They requested a waiver of minimum altitude requirements in New England waters, including critical habitat. USCG First District is currently authorized by NMFS to conduct surveillance flights at lower altitudes, the permission did not extend to other USCG flights.

Aircraft noise may startle whales and possibly result in short-term changes in whale behavior. Based on the information available, the benefits of receiving timely and accurate reports of right whales in New England to prevent ship collisions far outweighs the potential effects of aircraft flying below 3,000 feet. Therefore, it is reasonable that the USCG First District be allowed to fly below 3,000 ft to enable them to collect accurate whale sighting information in New England, including in critical habitat. This determination supersedes the restriction issued in the 1995 Biological Opinion.

The close approach by vessels is more problematic since the injuries that could be sustained by the whale could be much more severe. A trained observer should be able to identify a whale at 500 yds, although the observer's height of eye, weather, conditions, sea conditions, and species of whale can make identifications difficult. Assessing entanglements cannot be done beyond 500 yds. NMFS recognizes the importance of providing the USCG with prior authorization to approach right whales within 500 yds to investigate perceived whale entanglements or assisting disentanglement efforts. However, the inherent danger close approaches pose to whales does not support a blanket authorization for non-emergency operations. Therefore, NMFS does not propose to change the 1995 Biological Opinion's requirements that prohibit the USCG vessels from approaching whales head-on during non-emergency operations, not approaching right whales within 500 yds, and all other whales within 100 yds, except to investigate potentially entangled whales and assisting disentanglement teams.

Summary. Although the 1996 Biological Opinion concluded that the USCG's vessel and aircraft operations along the Atlantic Coast were likely to jeopardize the continued existence of the northern right whale, that Biological Opinion identified reasonable and prudent alternatives that would, in NMFS' opinion, avoid the likelihood of jeopardizing the whale. While the USCG implemented those reasonable and prudent alternatives, their action would avoid the likelihood of jeopardizing the continued existence of the northern right whale. Based on the best information available to NMFS, the USCG is implementing the reasonable and prudent alternatives from the 1996 Biological Opinion; therefore, the actions that were considered in the 1996 Biological Opinion are not likely to jeopardize the continued existence of the northern right whale.

Since the 1996 Biological Opinion was issued, new information (presented in the *Status of the Species*) suggests that the declining trend of northern right whale population that was presented in the 1996 Biological Opinion may be erroneous; based on the new information, the northern right whale's population trend is uncertain — it may be increasing, stable, or decreasing. Since the 1996 Biological Opinion was issued, additional actions necessary to recover the northern right whale have been implemented, which include (a) USCG's contributions to the EWS and surveillance systems, disentanglement support, operational directives, (b) the Atlantic Large Whale Take Reduction Plan, (c) part of the Atlantic Ocean Cetacean Take Reduction Plan, (d) the reasonable and prudent alternatives from four previous, un-related Biological Opinions, (e) the conservation program in the Navy Biological Opinion, and (f) recovery activities to reduce ship strikes associated with the two implementation teams. (for further information, refer to the *Environmental Baseline* section of this Biological Opinion). Although those actions have not been in place long enough for the northern right whale population to respond, those actions are expected to benefit the northern right whale in the foreseeable future. These actions should not only improve conditions for the northern right whale, they are expected to reduce sources of human-induced mortality to this population.

The effects of the new activities and events being considered (a whale/vessel interaction, multi mission upgrade, flight altitude relief) do not change the basis for that conclusion, and since analysis of the environmental baseline does not indicate any further impacts from past, present or future State, Federal or private activities, or significant changes in the status of threatened and endangered species in the Action Area since the 1996 Biological Opinion, then the overall effects

of the action have not changed since the 1996 determination that provided reasonable and prudent alternatives to the action that resulted in “no jeopardy.”

Humpback and Fin Whale

The CGC Campbell Incident. Based on the incident report and other information provided by the USCG, the interaction with the humpback whale in the summer of 1997 does not indicate that the effectiveness of the programs the USCG has developed and implemented are not effectively reducing the potential for USCG activities to impact large whales. The CGC *Campbell* incident (as described earlier) involved individual decisions that did not directly follow the intent of the APLMRI (which is to increase the degree of caution officers use when operating in an area and at a time when whales are abundant) and the USCG has taken appropriate steps to ensure that this will not recur (see the discussion in the northern right whale, above).

The 1997 humpback whale strike by the CGC *Campbell* appears to have been caused by an unusual event. Because the USCG took immediate action to make certain that all USCG vessel operators adhere to the letter and spirit of the USCG protected species conservation program (see description of the incident provided earlier), this incident does not change the basis for NMFS previous determination that these operations do not appreciably reduce the likelihood of either the survival or recovery of the humpback or fin whale in the Action Area.

NMFS is reasonably confident that the protective measures developed in consultation with the USCG, while designed to remove the threat of jeopardy to northern right whales, also reduces the likelihood of adversely effecting to the humpback and fin whale from USCG vessel and aircraft operations. However, based on the operation of USCG vessels in areas where whales are abundant and the fact that some situations cannot be avoided because of an animal's often unpredictable behavior, USCG vessels may, on occasion, affect large whales. However, these adverse effects are not likely to appreciably reduce the survival and recovery of the humpback or fin whales.

Multi-mission upgrade. Considering potential additional effects of the proposed multi-mission upgrade relative to what was evaluated in previous Biological Opinions, this action should not appreciably increase the overall effect of USCG vessel operations on humpback or fin whales in the Action Area provided that COs adhere to current USCG guidance during non-emergency missions. For this consultation, NMFS assumes that the USCG will assure that all COs adhere to APLMRI directives; the USCG's response to the CGC *Campbell* incident is evidence of their intent to fully enforce the APLMRI directives and supports this assumption. The change these vessels represent in hours of operation for search and rescue is a small component of overall operation when compared to the larger cutter class vessels. With the APLMRI directives in place, the additional potential for impact does not change NMFS' overall conclusion on the effects of vessel and aircraft operations of the 1996 Biological Opinion.

Sea Turtles

The previous Biological Opinion on the USCG Vessel and Aircraft Operations (1995) noted that boat and propellor related injuries are frequently documented for sea turtles. Turtles appear to

have little ability to avoid vessels operating at high speeds. No new information has become available to change the assessment of effects of this action on sea turtles. The possibility that a USCG vessel may strike a sea turtle exists, but the likelihood of such a taking is minimal. Therefore, no takes other than those anticipated in the 1995 Biological Opinion are anticipated for the USCG's Atlantic vessel and aircraft operations.

F. Cumulative Effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the Action Area considered in this Biological Opinion. Future Federal actions that are unrelated to the action being considered in this Biological Opinion are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

The Action Area for this consultation encompasses most of the western Atlantic Ocean along the coast of the United States. An innumerable number of State, tribal, or private actions that may affect threatened or endangered species within the Action Area may occur, although NMFS does not have information on those actions to include in this section of the Biological Opinion, with one exception. NMFS is aware of various initiatives to expand or establish high-speed watercraft service in the northwest Atlantic, including one service between Bar Harbor, Maine, and Nova Scotia with a relatively faster vessel than established watercraft service. Although this proposal seems reasonably certain to occur, the amount of information available about the proposal is limited. These vessels' operations may adversely affect threatened and endangered whales and sea turtles, as discussed previously with private and commercial vessel traffic in the Action Area. NMFS will monitor this situation as it occurs.

G. Conclusion

After reviewing the status of the humpback whale, northern right whale, fin whale, leatherback sea turtle, Kemp's ridley sea turtle, green sea turtle, hawksbill sea turtle, and loggerhead sea turtle, the environmental baseline for the action area, the effects of the action, and the cumulative effects, it is the NMFS' Biological Opinion that the U.S. Coast Guard's vessel and aircraft activities along the Atlantic Coast, including its multi-mission upgrade, is not likely to jeopardize the continued existence of the humpback whale, northern right whale, fin whale, leatherback sea turtle, Kemp's ridley sea turtle, green sea turtle, hawksbill sea turtle, and loggerhead sea turtle and is not likely to destroy or adversely modify the critical habitat that has been designated for the northern right whale.

Incidental Take Statement

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered

to be prohibited taking under the Act provided that such taking is in compliance with the reasonable and prudent measures and terms and conditions of the Incidental Take Statement.

Section 7(b)(4)(c) of the ESA specifies that in order to provide an incidental take statement for an endangered or threatened species of marine mammal, the taking must be authorized under section 101(a)(5) of the Marine Mammal Protection Act of 1972 (MMPA). Since no incidental take has been authorized under section 101(a)(5) of the MMPA, no statement on incidental take of endangered whales is provided and no take is authorized. Nevertheless, the USCG must immediately (within 24 hours) notify the Chief of the Protected Resources Division of the Northeast Region of the National Marine Fisheries Service (One Blackburn Drive, Gloucester, Massachusetts 01930; 978/281-9394) of any take(s) of an endangered or threatened whale.

Because sea turtles are sometimes killed by vessel strikes and a low level of incidental take occurs, the terms and conditions necessary to minimize and monitor takes are established. The incidental take, by injury or mortality, of one documented sea turtle (any species) is identified pursuant to section 7(b)(4) of the ESA. This take level represents the total take per year for all USCG vessel and aircraft activities along the Atlantic.

To ensure that the specified levels of take are not exceeded, the USCG should reinitiate consultation when one turtle is injured or killed in any USCG district. The NMFS Northeast or Southeast Region, as appropriate, will cooperate with the USCG in the review of such incidents to determine the need for developing further mitigation measures.

The following reasonable and prudent measure is established to implement the terms and conditions of the incidental take statement and to document an incidental take if it occurs:

The USCG must submit a report summarizing any sea turtle or marine mammal take(s) to NMFS within 15 working days of completion of any given project or activity. An annual report (for the preceding fiscal year) must be submitted to NMFS (Chief of the Protected Resources Division, Northeast Region, National Marine Fisheries Service, One Blackburn Drive, Gloucester, Massachusetts 01930; 978/281-9394) by January 30 of the following year that summarizes USCG projects and activities, documented sea turtle incidental takes, and sightings of threatened and endangered whales. In lieu of an annual report, the USCG can comply with this requirement by submitted periodic reports of USCG projects and activities, documented sea turtle incidental takes, and sightings of threatened and endangered whales.

Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

- (1) This Biological Opinion does not cover USCG vessel and aircraft operations or the multi-mission upgrade in the Gulf of Mexico or any marine events permitted by the USCG.

NMFS remains concerned about the effects of USCG activities in the Gulf of Mexico and permits for marine events on threatened and endangered species. As a result, NMFS recommends that the USCG initiate the Gulf of Mexico and the marine event consultations within 6 months of receiving this Biological Opinion.

- (2) One of the many important roles the USCG can play toward the recovery of the right whale is to ensure that the First, Fifth and Seventh District Operational staff are fully aware that identification of floating whale carcasses and assistance in both marking and retrieving of that carcass if it is a right whale. NMFS recommends that if identification cannot be made photographs should be taken and immediately provided to the NMFS or local knowledgeable sources for possible identification as soon as possible. USCG stations should also provide assistance in identifying, reporting and, as appropriate and consistent with the availability of resources and vessel safety and operations, marking and towing the carcass of right whales to location for necropsy. Atlantic Coast Stations in all three district must continue to be made aware of the importance of this to the USCG's marine resource protection initiatives and responsibilities under the ESA.
- (3) The USCG should periodically review compliance with the speed guidance it has issued, including interviews and surveys of Commanding Officers as part of the APLMRI monitoring program to evaluate their knowledge or understanding of the speed guidance. If such review indicates the USCG cannot comply with the speed guidance, the USCG should reinitiate consultation.
- (4) A "Job Aid" has been prepared through coordination with the Northeast Fisheries Science Center, Woods Hole, Massachusetts, and the USCG First District to provide USCG stations with helpful information that will assist personnel in getting the best information from efforts required under the Law Enforcement Guidance that implement the APLMRI. This is included in Appendix C. Also included are the standard sighting form and the entanglement form and a call down list and protocol for the Command Center. Within the next three months NMFS will work with the Fifth and Seventh Districts to tailor this job aid to those geographical areas. While this is not a required document, it will be an effective training and resource tool on how information that will be most useful to managers and scientists can be collected.
- (5) NMFS encourages the USCG to evaluate all its authorities to identify opportunities to take affirmative actions to conserve threatened and endangered species in fulfillment of section 7(a)(1) of the Endangered Species Act of 1973, as amended. In particular, NMFS encourages the USCG to evaluate its authorities to identify more aggressive opportunities to reduce the threat of ship strikes of endangered large whales, by both USCG and commercial vessel ship traffic. For example, the USCG noted in a letter to Hilda Diaz-Soltero, Office of Protected Resources, dated 22 December 1997, that, although specific protective measures for large whales could not be incorporated into the scope of the rule describing the Safety Management Systems for vessels, consistent with the International Management Code already in place, the policy guidance documents implementing the rule does provide the opportunity to ensure that mariners are aware of and adhere to specific requirements including, but not limited to, regulations and guidelines relevant to

the protection of endangered species. In this regard, NMFS has recommended that the USCG use the International Safety Management Code policy documents as a mechanism to educate mariners about the threat of ship strikes to endangered whales and to enforce endangered species regulations. Specific ways in which these measures might be incorporated into the policy documents are described in Appendix D.

Based on discussions between NMFS and Coast Guard staff, it is NMFS' understanding that steps are being taken to educate mariners about right whales and other protected marine species through ISM policy documents. In addition, training courses for safety auditors and inspectors and Coast Guard personnel responsible for safety inspections are being modified to include information on right whales (and their vulnerability to ship strikes) and other protected marine species. The upgrade of training courses also has resulted from discussions between NMFS and Coast Guard staff. For these efforts NMFS commends the Coast Guard. NMFS requests a written summary of the status of implementing these measures, to review the draft policy documents, a description of how precautions regarding protected marine species are reflected in the training course materials, a copy of written materials used in the training course, and a description of how the Coast Guard is addressing NMFS' recommendations on these matters. Also, as indicated in Appendix D, NMFS recommends that Volume 9 of the Marine Safety Manual be modified to include NMFS recommendations regarding marine protected species guidance and regulations, that efforts are made to complete Volume 9, and that NMFS be given an opportunity to review a draft of Volume 9.

- (6) In April 1998, the U.S. government decided to submit a proposal to the International Maritime Organization (IMO) requesting two mandatory ship-reporting systems along the east coast of the United States. The proposal was submitted to the IMO's Subcommittee on Safety and Navigation for consideration to the Marine Safety Committee. The proposal likely will be approved by the IMO and if approved, the system will be implemented by mid-1999. Inasmuch as the Coast Guard is the primary U.S. agency responsible for regulating vessel traffic and the safety of vessels at sea and in U.S. waterways, it will have an important role in helping to implement the system. Thus, working with contractors, NOAA and other agencies, and bringing its unique marine communications and vessel operations expertise to bear, the USCG is expected to take responsibility, appropriate to its authority, to pursue these initiatives. This is expected to include, but not be limited to, helping to devise and implement the communication systems used to receive transmissions from ships and to send messages from shore to ships, devise and implement programs to enforce the reporting system, and seek necessary legislation (or changes to existing legislation) to implement the program.
- (7) The USCG should work with NMFS, recovery implementation teams, and other agencies to develop information on critical habitats, marine sanctuaries, and endangered species migration routes, feeding areas, and breeding areas for use by mariners and boaters. The USCG would:
 - (a) include species awareness information in basic boating safety training provided to the public;

- (b) incorporate whale, sea turtle, and beach nesting bird conservation information in the USCG Sea Partners marine pollution prevention efforts;
- (c) distribute information geared toward cautioning commercial and recreational vessel traffic about collisions with right whales as part of the USCG Vessel Documentation and Inspection Program;
- (d) work with NMFS, USFWS, recovery implementation teams, and other agencies to develop a Merchant Mariner Curriculum on endangered species and develop whale identification and awareness information that could be distributed to the public and merchant vessel operators applying for USCG licenses to operate vessels.

We request a report on the status of these action items by the last day of June 1999. Please send this information to the Chief, Protected Resources Division, National Marine Fisheries Service, One Blackburn Drive, Gloucester, Massachusetts, 01930.

- (8) USCG should assess mission requirements like full power trials so that they can be scheduled during times of year and in areas where/when they present the least hazard to endangered and threatened species. All decisions regarding routine tasks should be evaluated in this context. Please send the results of this assessment to the Chief, Protected Resources Division, National Marine Fisheries Service, One Blackburn Drive, Gloucester, Massachusetts, 01930.
- (9) The USCG First District has requested that NMFS review the recommendation to make radio broadcasts on the locations of whales. They are concerned that during the boating season, these types of broadcasts may actually attract whale watchers to the areas where the whales are present and thus, increase the chances of vessel collision with uninformed and untrained operators. NMFS recommends that the USCG First District continue to support the EWS and other sighting programs by reporting that information to the appropriate party as identified in Appendix C. By July 1998, NMFS will work with the USCG to determine how to deal with whale sightings when the EWS is not operating.
- (10) NMFS encourages the USCG to continue its training courses for USCG lookouts. Also, NMFS encourages the USCG, in consultation with NMFS staff, to continually update and revise the courses so that they provide the best available information on identifying marine mammals at sea.

Reinitiation of Consultation

This concludes formal consultation on the USCG's Atlantic vessel and aircraft operations. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that

not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the Biological Opinion; (4) a new species is listed or critical habitat designated that may be affected by the identified action.

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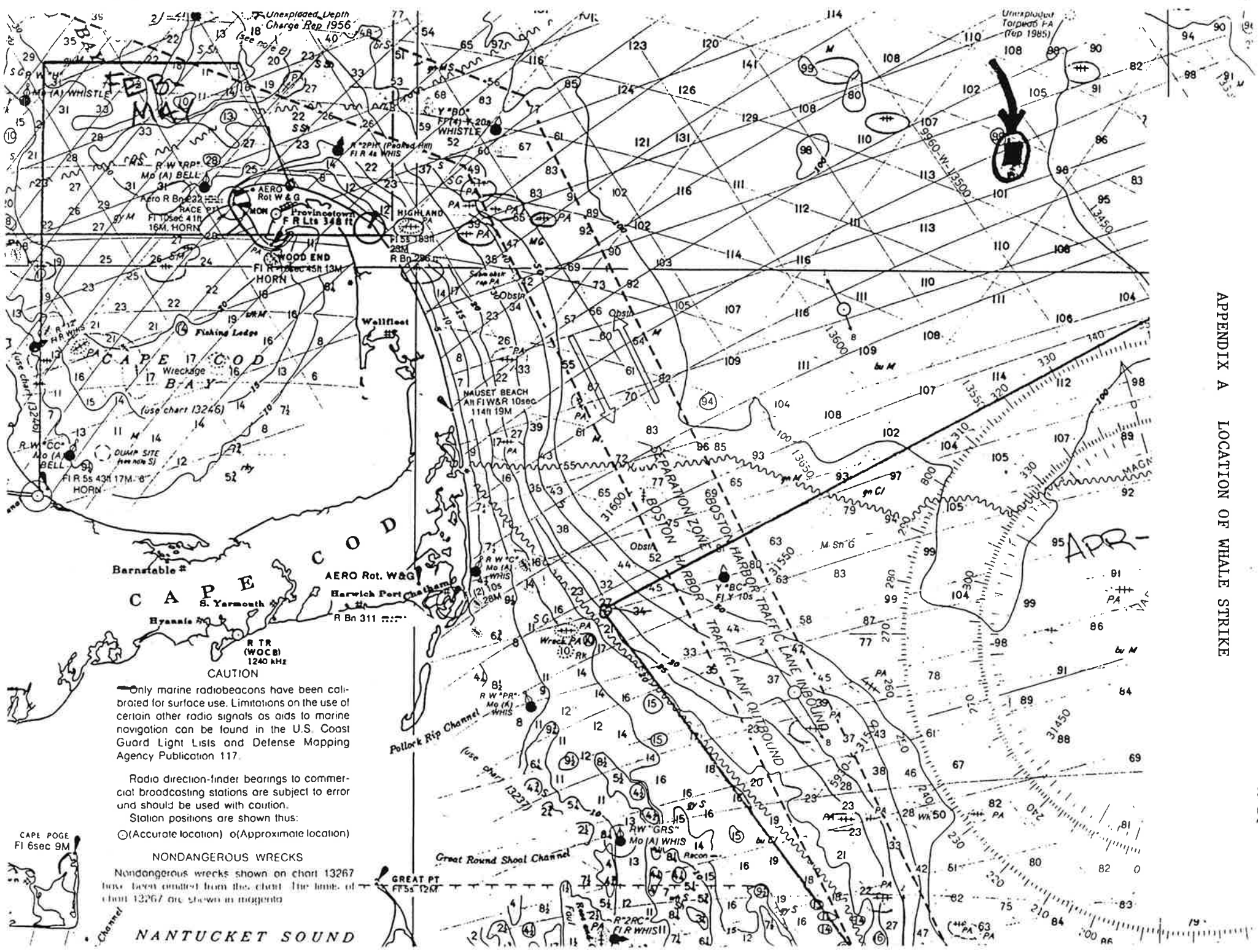
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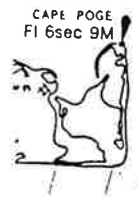


Only marine radiobeacons have been calibrated for surface use. Limitations on the use of certain other radio signals as aids to marine navigation can be found in the U.S. Coast Guard Light Lists and Defense Mapping Agency Publication 117.

Radio direction-finder bearings to commercial broadcasting stations are subject to error and should be used with caution. Station positions are shown thus:

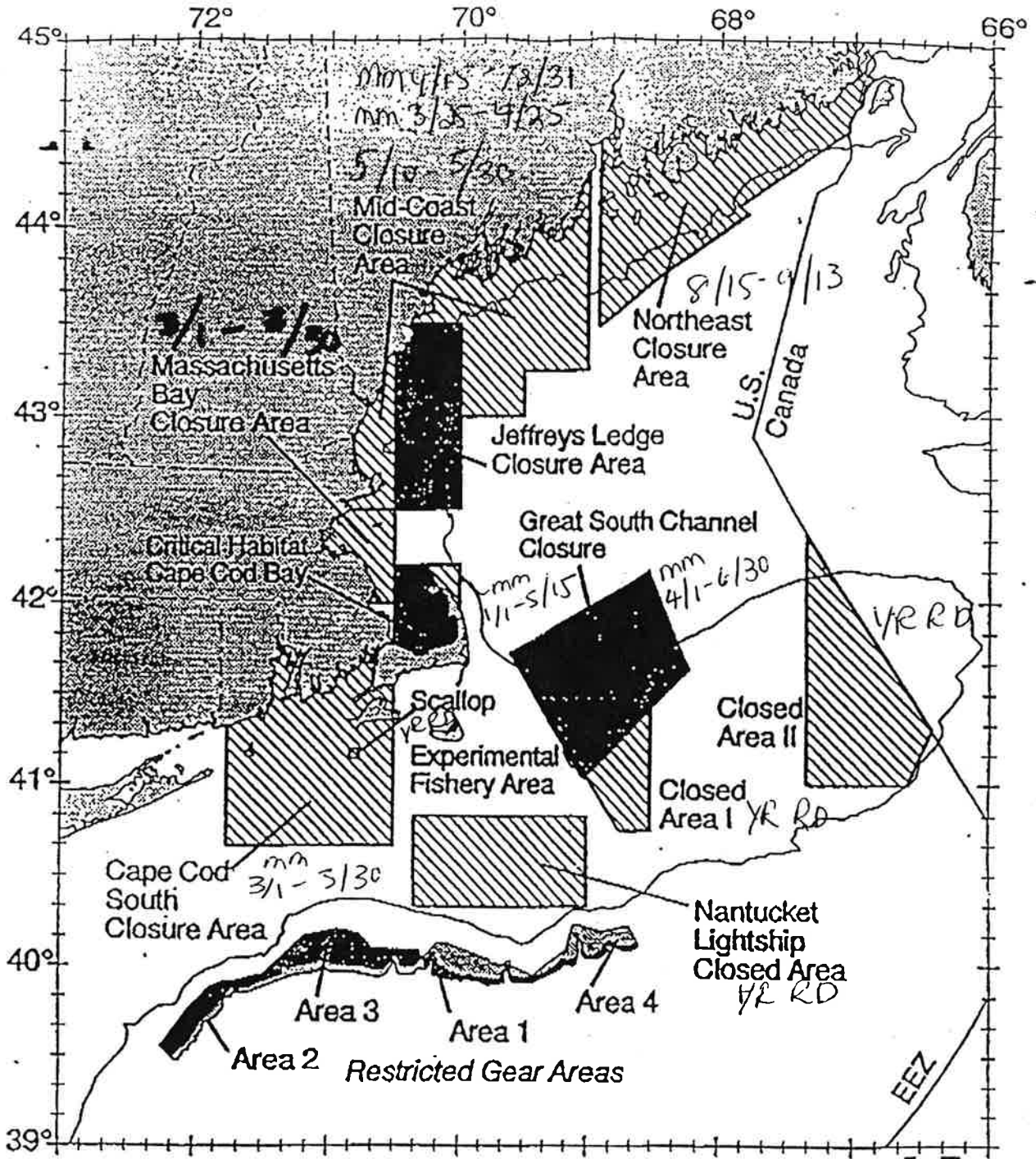
○ (Accurate location) ○ (Approximate location)

NONDANGEROUS WRECKS
 Nondangerous wrecks shown on chart 13267 have been omitted from this chart. The limits of chart 13267 are shown in magenta.



NANTUCKET SOUND

APPENDIX A LOCATION OF CLOSED AREA II



This is a simplified summary of the measures in effect under Amendment 7 to the Northeast Multispecies Fishery Management Plan. This summary has no legal standing. You should also get a copy of the official rules as published in the Federal Register.

APPENDIX B

Summary of USCG actions regarding R&PA's and Conservation Recommendations of Biological Opinions issued in 1995 and 1996

Summary of USCG Action Regarding NMFS Reasonable & Prudent Alternative (RPA)

<u>RPA Component</u>	<u>Status</u>
1. Implement September 1995 Biological Opinion Conservation Recommendations as modified by 1996 Opinion; report to NMFS.	Ongoing requirements
2. Post dedicated lookouts during all transits within 20 nm of shore, in areas of whale concentrations and high use areas.	Complete, marine mammal training of lookouts and bridge watchstanders ongoing.
3. All lookouts must successfully complete marine mammal lookout training program.	Ongoing: training program undergoing NMFS review and certification.
4. Provide support for aerial surveys.	Continuing activity; ongoing.
5. Issue USCG vessel speed guidance.	Complete.
6. Participate in finding technological solutions to prevent ship strikes.	Continuing activity; ongoing.
7. Issue USCG vessel approach guidance.	Complete.
8. Provide information to commercial and recreational vessel operators; work to update voyage planning publications.	Continuing activity; ongoing.
9. Provide timely information on endangered whales to commercial vessels.	Continuing activity; ongoing.
10. Complete § 7 consultation with NMFS before CG issues final rule on permitting marine events.	Ongoing.
11. Work with US agencies to develop proposals for presentation to IMO re: designate critical habitat areas & high use areas as Particularly Sensitive Sea Areas (PSSA) and/or Areas to be Avoided (ATBAs) and consider other routing measures.	Continuing activity; Ongoing.

Assessment of RPA and USCG Actions

1. Implement September 1995 Biological Opinion Conservation Recommendations, as modified by the RPA, that concern endangered whales; provide annual report to NMFS.

Status: Ongoing: verbal report provided January 1997, annual written reports for 1998 and beyond.

— Conservation Recommendations and Status:

- a. Implement protection program for waters off the east coast.
 - Tasking implemented in First, Fifth and Seventh District Marine Mammal and Endangered Species Protection Program
 - Ongoing execution
- b. Revise standard operating procedures to incorporate protection for threatened and endangered species.
 - Revised guidance issued
- c. Train and post dedicated lookouts to spot marine mammals and sea turtles.
 - Tasking implemented in First, Fifth and Seventh District Marine Mammal and Endangered Species Protection Programs
 - Northeast Fisheries Training Center, assisted by NMFS, provides training to First and part of Fifth District; Southeast Fisheries Training Center, assisted by NMFS, provides training to Fifth (not covered by Northeast) and Seventh District
 - Training curriculum for Atlantic area submitted for NMFS approval
 - Ongoing execution
- d. Broadcast sightings advise mariners to use slowest safe speed and exercise caution in vicinity of sighted whales in SEUS from mid-December through March via quickest practical means - NAVTEX, Broadcast Notice to Mariners and direct radio transmissions. System coordinated with US Navy's FACSFAC in Jacksonville, FL.
 - Implemented in conjunction with SEUS Early Warning System
 - Ongoing execution
- e. Avoid routine transits in whale habitat areas where whales are concentrated.
 - USCG units avoid high-use and high-density areas whenever possible.
- f. Continue active participation in regional recovery plan implementation teams and task forces.
 - Active USCG participation continues
- g. Continue missions which support recovery efforts.

- Ongoing execution. Specific examples include: vessel and logistics support for stranding and entanglement efforts; NAVTEX and notices to mariners; and dedicated patrols for enforcement and sightings.
- h. Maintain minimum distance from whales during standard operations.
 - Guidance issued
 - Ongoing execution
 - i. Notify and advise USCG vessels to proceed with caution near areas of whale sightings.
 - Guidance issued
 - Ongoing execution
 - j. Develop MOU regarding SEUS and NE regional recovery implementation teams for Right Whale and Humpback Whale Recovery Plans.
 - Ongoing regional team effort
 - k. Participate with NE and SEUS implementation team efforts to develop Mid-Atlantic Implementation Team.
 - Ongoing regional recovery plan implementation team effort - considering options of either extending existing NE and SEUS team charters to cover mid-Atlantic or developing a third team.
2. Post dedicated lookouts during all transits within 20 nm of shore, in areas of whale concentrations and high use areas.

Status: Complete, lookouts on all transits within 20 nm from shore are specifically tasked with sighting marine mammals.

3. All lookouts must successfully complete marine mammal lookout training program.

Status: Ongoing; training program undergoing NMFS review and certification.

4. Provide support for aerial surveys.

Status: Continuing activity; ongoing contributions to SEUS EWS, USCG aerial assets in NE, and increased vessel sighting support in mid-Atlantic.

5. Issue USCG vessel speed guidance.

Status: Complete.

6. Participate in finding technological solutions to prevent ship strikes.

Status: Continuing activity; ongoing. We attend Northern Right Whale seminars where commercial industry is getting more educated in marine mammal protection efforts.

7. Issue USCG vessel approach guidance.

Status: Complete.

8. Provide information to commercial and recreational vessel operators; work to update voyage planning publications.

Status: Continuing activity with regional recovery implementation teams; commenced developing revisions of publications (Coast Pilot, Sailing Directions, and charts). We are engaged with NOAA on this issue.

9. Coordinate with Recovery Plan Implementation Teams to provide timely information on endangered whales to commercial vessels.

Status: Continuing activity. In SEUS, working with District Seven and U.S. Navy FACSFAC in Jacksonville, FL to more closely coordinate sighting reports for this season; Dec 97 - Mar 98.

10. Complete section 7 consultation with NMFS before CG issues final rule revising program for permitting marine events.

Status: Consultation Ongoing. Effective date of revised regulations has been extended to comply with this requirement.

11. Work with other agencies to develop IMO initiatives to designate critical habitat areas & high use areas as Particularly Sensitive Sea Areas and/or Areas To Be Avoided (ATBAs) and consider other routing measures.

Status: Ongoing. Preliminary briefings on IMO process and requirements have been provided to NMFS, MMC, and other agencies involved in recovery implementation team efforts. Coast Guard submitted Northern Right Whale/Ship Strike Information Paper for the 40th Session of the IMO Marine Environment Protection Committee in Sep 97. Coast Guard is working with NOAA and NMFS to identify ways IMO can heighten vessel operators' awareness and cooperation

In December 1997, a required annual report will provide the status of all implementation items. In June 1998, the APLMRI Monitoring Plan will provide a formal evaluation of the entire program.

APPENDIX C

Updated protocols and forms for the First District First District Notification protocol

(1) PRIORITY CATEGORIES: CG platforms should have a single contact-point: that is, for the priority categories identified below, they call in to their Command Center. The Command Center relays to the Boston communications center. The platforms aren't asked to deal with a complex and changeable call-down list. They only have one call to make, the same one they routinely make. The call-down list is instead located in Boston--easily accessed and updated etc. This procedure applies to CG aircraft as well.

The Boston communications center will have a call-down list as follows:

Category I: Entangled endangered whale --- Center for Coastal Studies, 800-900-3622
(hotline) 508-487-3622 (phone)

Category II: Live right whales — Pat Gerrior, Early Warning System, 508-585-8473(beeper)
and 508-495-2090 (phone)

Category III: Dead endangered whales -- Dana Hartley, 978-585-7149 (beeper) and 508-495-2090 (phone) Injured alive right whale (e.g., vessel collision) but no gear evident, includes floating large whales

(2) NON- PRIORITY CATEGORY (includes platform-of-opportunity sighting information)

Instructions and guidance to CG platforms:

Through coordination with the USCG First District, we have learned that the best approach to putting instructions and ID information aboard CG platforms is to do so as a "Job Aid." This is slightly less formal than enforcement guidance, and means that the CG is not responsible for producing and distributing or changes--NMFS is.

We propose to distribute the following "Job Aid" and standard sighting /entanglement forms to the First District first, and then expand to the Fifth and Seventh Districts.

G. Example Sighting Report

STANDARD SIGHTING FORM

(Updated 06-Feb-98)

See Sighting Network Manual, Section 1.F., for instructions in filling out this form. Please write legibly. Remember, PHOTOS ARE ESSENTIAL! See Section 1.D. for photography instructions. LABEL TAPES & PHOTOS!

1. Condition of Animal(s) (indicate all that apply):

- Alive & Well Injured Stranded, Live
 Entangled Floating Carcass Stranded, Dead

2. Year 97 3. Month 03 4. Day 24 5. Time(24hr local) 15466. Latitude (dd°mm.m) 42° 56.7 7. Longitude (dd°mm.m) 067° 01.58. Species Identified Finback Whale9. I.D. Certainty: Definite Probable Possible10. Number (include count of calves) 2 (1 calf)11. Time With Animal (hh:mm) 00:2312. Closest Approach (meters) 12513. Photos (tape, roll and frame numbers) Video (tape #4)14. Wind Direction (true) 070 15. Wind Speed (knots) 1016. Water Temperature (°C) 8.217. Vessel Name or Aircraft # CGC Monomoy18. Observer Name and Phone # ENS J. Doe 508-###-####

19. COMMENTS (See Section 1.F.19. for important details to include):

- Body was dark brown/grey, with light grey patches up by the head.
- Tall, sickle-shaped dorsal fin, set back aways on body.
- Animal did not lift its tail. Could not see flippers.
- Animal fairly long, maybe 60 feet.
- Jawline visible as whale came up to blow. Lower jaw light in color. Appeared fairly straight.
- Blow tall and straight.
- Swimming at a moderate speed--maybe 4 or 5 knots.

 more on back

H. Record of Changes

CHANGE NUMBER	DATE OF CHANGE	DATE ENTERED	BY WHOM ENTERED

SECTION 1 - Platforms of Opportunity Program (POP) JOB AID

CONTENTS

- A. Introduction--Your Role in the NEFSC POP
- B. Priorities
- C. Suggested Protocols
- D. Photography
- E. Species Identification
- F. Sighting Form Instructions
- G. Example Sighting Report
- H. Record of Changes

A. Introduction--Your Role in the NEFSC POP

The primary objective of the Northeast Fisheries Science Center's (NEFSC) Platforms of Opportunity Program (POP) is to document offshore sightings of right whales and dead, injured, or entangled whales of any species. The rarity of these sightings necessitates broad coverage using all available platforms. Sightings of right whales are of particular importance. This endangered species has been identified as a top priority marine mammal research and management concern. Documentation of such sightings are of great importance to management and policy decision-makers. The information collected by this program is also used in human-impacts assessments, population biology and life-history studies.

The following subsections in this job aid describe suggested procedures to help you effectively perform operations involving marine mammals.

B. Priorities

It is recognized that the requested whale sighting and reporting is generally secondary to the primary mission of Coast Guard vessels. Therefore, we only request the vessel divert from normal operations for priority sightings. These priority sightings are:

1. Dead or human-impacted right whales (ship strikes or fishing gear entanglements)

2. Sightings of right whales that are alive and well;
3. Dead or human-impacted whales of any species;
4. Sightings of pilot whales within 5 miles of shore;
5. Large groups of whales.

As a participant in this program, you are being asked to be on the lookout for these rare sightings as a routine part of bridge watch.

The effect these tasks will have on operations will be minimal. Months may pass without an sighting of this type. However, in the unusual case where one of these sightings is encountered, we request personnel document it following the suggested protocols.

C. Suggested Protocols

These suggested protocols are intended to complement Enforcement Guidance directives regarding the reporting of sightings. When investigating a priority sighting, the vessel should be maneuvered into a position to optimize video taping and/or photographing the animal(s). See **Subsection D.** for details on approaching and photographing.

*For sightings of right whales that are alive and well--*personnel should be prepared to provide OPCON with the time, location, and the observed right whale features (see the identification aids for important right whale characteristics). Filling out the Sighting Form will provide you with the list of all the important information that may be requested. After getting video footage or photographs, there is no need to stand by or maintain visual contact with the whale.

*For human-impacted or dead whales--*when contacting OPCON about entangled whales, personnel should be prepared to provide the information recorded on the Entanglement and Boat Collision Reporting Form. When contacting OPCON about dead whales, personnel should be prepared to provide the information requested for the Sighting Form Comments in **Subsection F.19.g.**

When these rare sightings occur, try to keep the whale in sight until OPCON instructs otherwise. The vessel is the primary means for marking the location of the whale until additional resources have been activated and directed to the site. A disentanglement team may be transported to the location, or in the case of a dead

right whale, arrangements may be made to have the carcass towed back to shore for a full necropsy.

DO NOT attempt to disentangle whales of any species without authorization and instructions. The initial instinct of cutting some of the gear off is dangerous and ineffective. Large whales are powerful and unpredictable. Cutting lines close to the tail makes it very difficult to remove the remaining gear.

Lastly, before returning to normal operations, check the reporting forms to ensure they are complete and all requested information have been addressed (see **Subsection F** for detailed instructions for filling out the Sighting Form). Written descriptions or drawings of identifying features, entangled gear, injuries, or unusual behaviors are also very valuable. Send completed sighting forms and any video tapes or photos to the following address as soon as possible. The address:

POP Sightings
NEFSC
166 Water St.
Woods Hole, MA 02543-1026
Fax: (508)-495-2258

Completed Entanglement and Boat Collision Reporting Forms should be sent to:

Entanglement Report
Center for Coastal Studies
P.O. Box 1036
Provincetown, MA 02657
Fax: (508)-487-4495

D. Photography

We request that you do what you can to document a sighting with video or still photos. This is an important part of the data collection. Video or photographs are invaluable for confirmation of the species identification and for assessing the condition of entangled animals. Such documentation can also be helpful in determining whether several "floater" reports can be attributed to a single carcass.

Our preferences for video footage or still photos are indicated for each type of sighting, but whenever possible have two people

working to get both video and stills. Please use the date and time imprint option if available on your video or still camera.

When taking video or photographs of right whales that are alive and well--video is preferred. Do not maneuver the vessel in front of the animal. Video or photographs of the "callosities" on the head are very valuable for identifying an individual whale. However, more distant shots will also allow confirmation of the sighting as that of a right whale. Shots taken as the whale flukes are excellent for verifying a right whale sighting (of the species you may see, only humpback, right, and sperm whales lift their flukes when diving), and can be taken from a considerable distance and still be useful. See the identification aids for an example of a right whale tail.

For entangled animals--video is preferred. Maintain a safe distance from the animal, keeping in mind that lines may be trailing several hundred feet behind it. When video taping, do not zoom in beyond 15X--"camera shake" is increased and the picture begins to lose sharpness. For still photos, use a telephoto lens if available. Be liberal in video taping and taking photos. Focus on ropes or netting wherever it is entangled on the animal. Photograph any identifying markings on associated buoys or high flyers. Following photography, entangled animals should be given plenty of room.

For dead animals--still photos are preferred. Pull up close and get good photographs of as much of the animal as possible. Take pictures from several angles. Zoom in on areas where a line could get caught, i.e., the head, dorsal fin, flippers and tail. Photograph any line marks on the body. Also look for evidence of a ship strike--any gashes or propeller marks (see the identification aids for a picture of propeller marks).

Thoroughly label all tapes and photographs. Include the vessel name or aircraft number, the date, time, and position. Also include the roll and frame number on the back of photos. Please ensure labels are legible. Film should be sent to NMFS immediately and accompanying the Sighting Forms.

E. Species Identification

If you could not get video or photographs of a sighting, make an effort at identifying the species, especially if you believe it is a right whale or an entangled animal. Be sure to indicate

your level of certainty in your species identification in the I.D. Certainty field of the Sighting Form. Please also provide a description of the distinguishing characteristics you used to identify the species. Sketches are very helpful, but draw only what you saw, not what a field guide shows. See Subsection F.19. of this manual for important points to include in your description. If you cannot determine what the species was, "unident. large whale" or "unident. dolphin" is acceptable, but try to narrow down the possibilities as much as possible. A good field guide will help, such as Katona *et al.*, 1993, *A Field Guide to Whales, Porpoises, and Seals from Cape Cod to Newfoundland.* See also the identification aids we have provided.

F. Sighting Form Instructions

See Subsection G. for an example of a completed sighting form. The following numbers correspond to the items on the form.

1. Check the appropriate box or boxes that best indicate the sighted animal(s) condition.
2. Year: enter two digits--"97", "98", etc.
3. Month: "01", "02", etc.
4. Day: "01", "02", etc.
5. Time of the sighting should be logged when the animal is first seen. Use local military, e.g., "1325" or "13:25."
6. Latitude: "41° 25.3"
7. Longitude: "68° 10.2"
8. Use the common name for each species, e.g., "Fin whale".
9. Be sure to check the appropriate box to indicate your level of certainty in correctly identifying the species.
10. Give your best estimate of the total number of animals seen during a sighting. Include a count of calves in the sighting, e.g., "25 (4 calves)" (total = 25 animals).
11. How long did the vessel stay with the animal(s)?
12. What was the shortest distance between the vessel and animal(s) during the sighting (in meters)? For reference, there are 1852 meters in one nautical mile; 100 yards = 91 meters.

13. Give the video tape number or the roll number and the frame numbers taken of the sighting.
14. Give the wind direction in degrees true.
15. Give the wind speed in knots.
16. Give the water temperature in degrees Centigrade rounded off to the nearest tenth of a degree. If your transducer does not provide water temperature, check if there is an engine salt water intake thermometer. The conversion from Fahrenheit to Centigrade is: $^{\circ}\text{C} = 5/9(^{\circ}\text{F} - 32)$.
17. Give the vessel's name or the aircraft's number from which the sighting was made.
18. The name of the person who made the sighting should be entered here. Including a phone number that can be used to contact that person is very helpful in case some follow-up information is needed.
19. Be liberal in writing comments. The more information the better. If unable to get pictures of a sighting, please describe in detail all the characteristics you used to identify the species. Sketches can also be helpful, but only draw what you saw, not what a field guide shows. Important things to look for and take notes on include:
 - a. Color pattern on fins and body. Does the color pattern on the fins or body include stripes, spots, or patches? Or is it uniform in color?
 - b. Shape and size of dorsal fin, tail and flippers. Is there a dorsal fin? Is it short and triangle-shaped, or tall and sickle-shaped? Is it set far back or in the middle of the back? Does the animal lift its tail when diving? Is the trailing edge of the tail smooth or ragged-looking? Are the flippers long and slender, or short and paddle-shaped?
 - c. General shape of the body. Is the body slender or robust? How long is the animal--40 feet? 60 feet?
 - d. Shape of the head. Does the animal have a snout and forehead like a dolphin? Is the snout long or short? Is there a defined crease between the snout and forehead? Is the forehead markedly bulbous? On large whales--is the jawline noticeable? What color is the

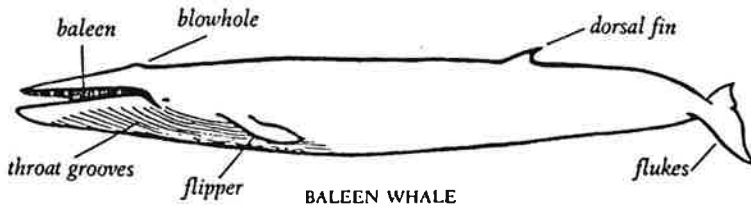
lower jaw? Is it straight in appearance or arched? See the diagrams in the identification aids for profiles of heads--does the animal's match any of these?

- e. Shape of the blow. Is the blow bushy and angled forward, V-shaped, or tall and straight? -
- f. Behavior. Was the animal swimming fast, slow, or logging? Did it jump clear of the water, breach, or roll at the surface? Was its mouth ever open? Describe or draw what you saw.
- g. **For dead "floater" whales, pay special attention to the *absence or presence of throat grooves, and the shape of the flippers* (see the identification aids for illustrations). Note the condition of the animal, whether the skin is intact, peeling, or gone. Use the boat or some other means to get a good estimate of the animal's length. Note the sex of the animal. Note if there are any signs of human impact--line marks, propeller scars, or bruised skin tissue. Try to determine what direction the carcass is drifting and at what speed. In what direction (degrees true) is the head pointing?
- h. **For entangled whales, fill out the Entanglement and Boat Collision Reporting Form only.

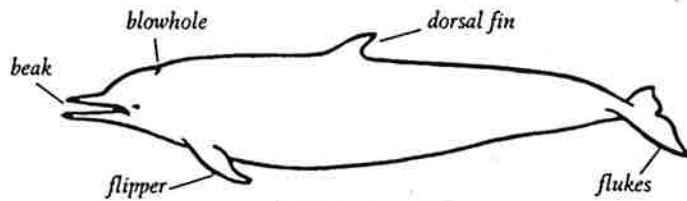
**SECTION 2 - Platforms of Opportunity Program
(POP) JOB AID**

Identification Aids

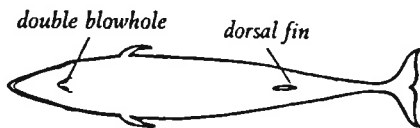
GENERALIZED WHALE TYPES



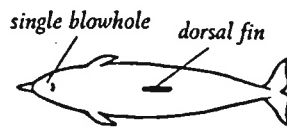
BALEEN WHALE



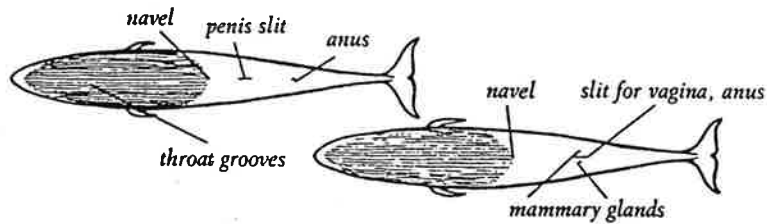
TOOTHED WHALE



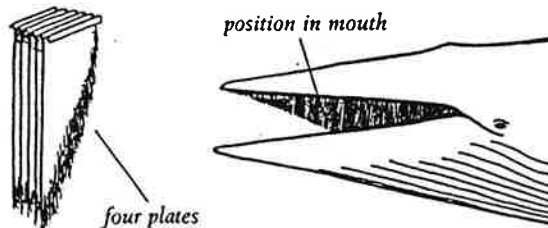
BALEEN WHALE, TOP VIEW



TOOTHED WHALE, TOP VIEW



MALE AND FEMALE BALEEN WHALES, SEEN FROM BELOW



BALEEN

Whales and Dolphins of the Northeast Atlantic Region
Listed in order of likelihood of being seen for each zone

Large whales length > 20'

Small whales length <20'

ZONE I

fin whale *Balaenoptera physalus*

humpback *Megaptera novaengliae*

minke whale *B. acutorostrata*

right whale *Eubalaena glacialis*

sei whale *B. borealis*

blue whale *B. musculus*

killer whale *Orcinus orca*

white-sided dolphin *Lagenorhynchus acutus*

pilot whale *Globicephala melas*

harbor porpoise *Phocoena phocoena*

saddleback dolphin *Delphinus delphis*

white-beaked dolphin *L. albirostris*

ZONE II

sperm whale *Physeter catodon*

sei whale *B. borealis*

bryde's whale *B. edeni*

saddleback dolphin *Delphinus delphis*

pilot whale *Globicephala melas*

Risso's dolphin *Grampus griseus*

bottlenose dolphin *Tursiops truncatus*

striped dolphin *Stenella coeruleualba*

Atlantic spotted dolphin *S. frontalis*

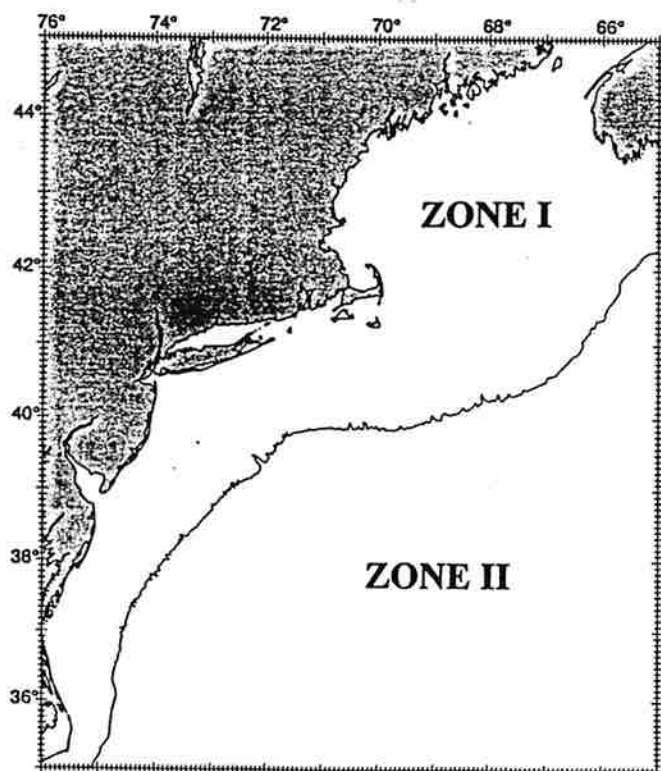
pygmy + dwarf sperm whales *Kogia spp.*

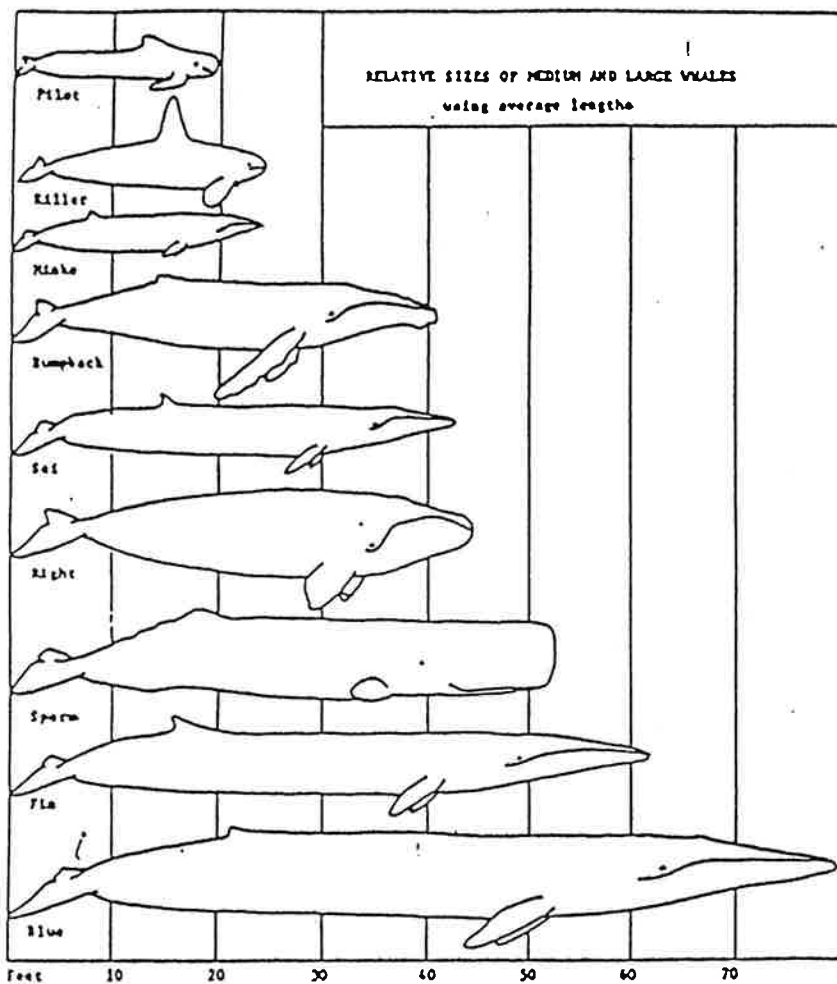
spinner dolphin *S. longirostris*

goose-beaked whale *Ziphius cavirostris*

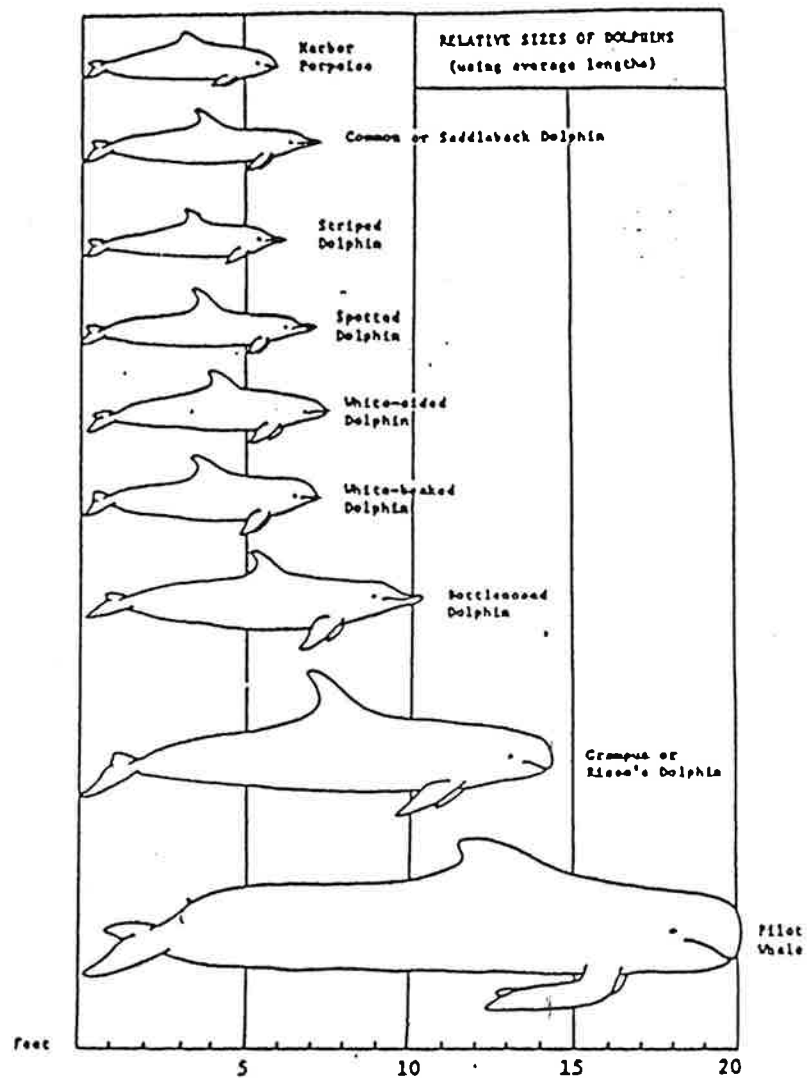
beaked whales *Mesoplodon spp.*

rough-toothed dolphin *Steno bredanensis*





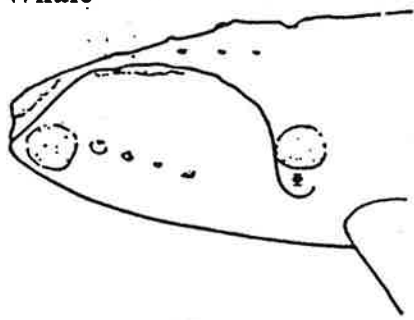
adapted from Larry Foster/THE GENERAL WHALE



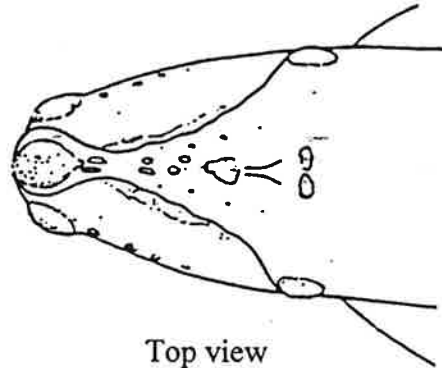
adapted from Larry Foster/THE GENERAL WHALE

Head Profiles of the Primary Large Whale Species in the Northeast Region

Right Whale

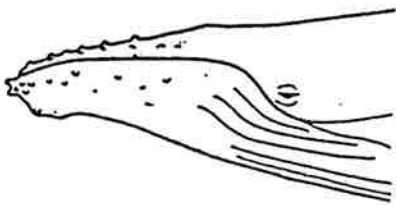


Side view

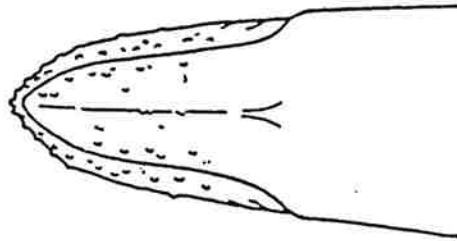


Top view

Humpback Whale

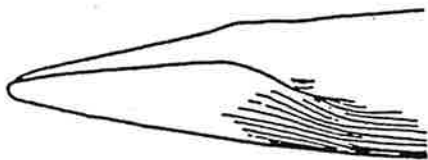


Side view

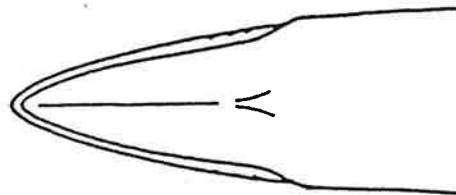


Top view

Finback Whale

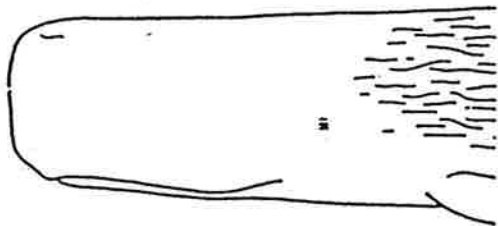


Side view

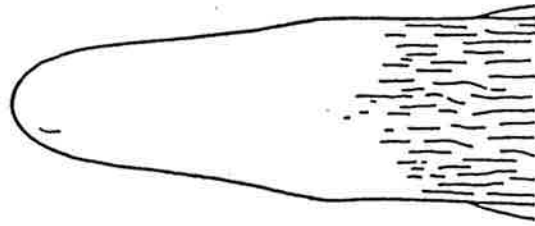


Top view

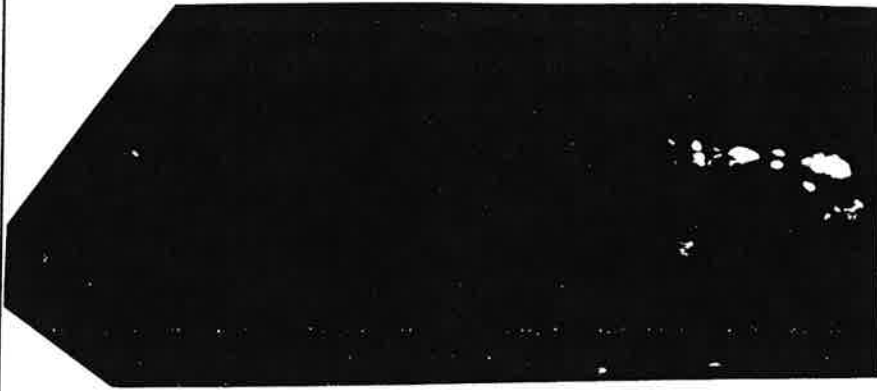
Sperm Whale



Side view

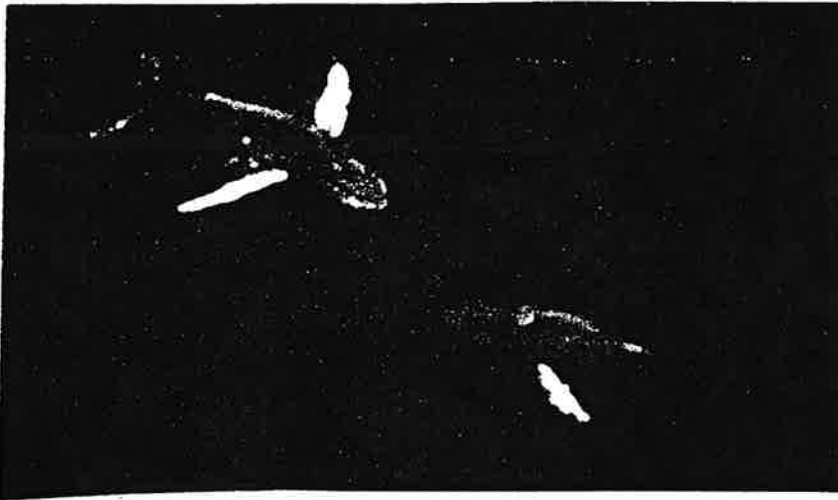


Top view



Right Whale

- ◆ Light colored "callosity" patches on head (individual's patterns vary)
- ◆ No dorsal fin
- ◆ Squarish flippers
- ◆ Broad, dark colored body
- ◆ Smooth, deeply notched tail flukes--often lifted into the air before deep dives



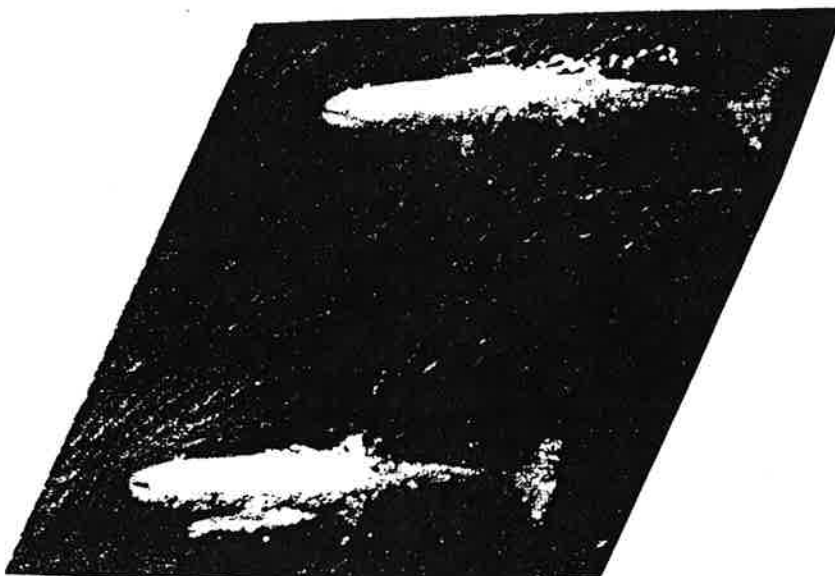
Humpback Whale

- ◆ Flippers white and 1/3 body length
- ◆ Dorsal fin present
- ◆ Fairly broad body
- ◆ Often lifts flukes into air before deep dives



Finback Whale

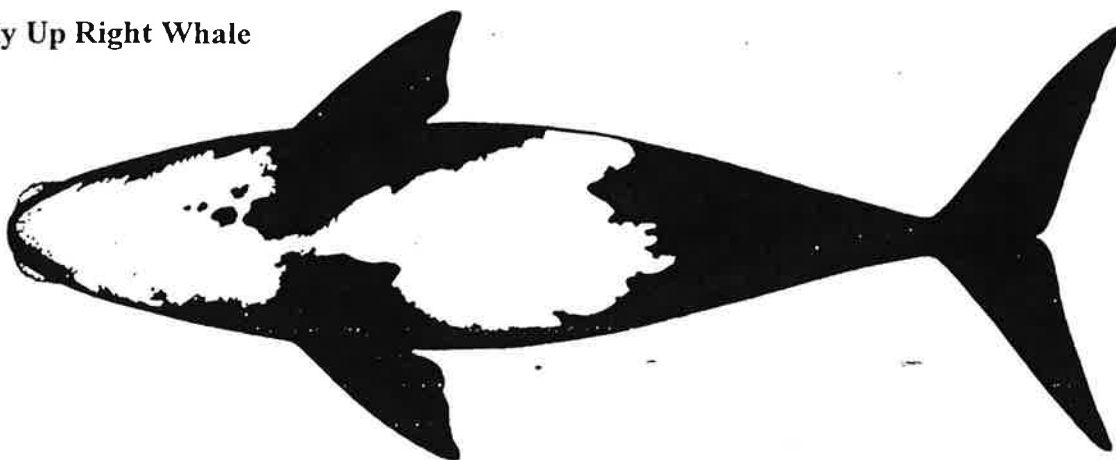
- ◆ Long, narrow body
- ◆ Light coloration on right side of head
- ◆ Prominent dorsal fin
- ◆ Light V-shaped lines on back
- ◆ Small flippers
- ◆ Does **not** lift flukes before deep dives



Sperm Whale

- ◆ Blowhole all the way forward and off to the left side of the head
- ◆ Head rounded and blunt
- ◆ Low, rounded dorsal fin
- ◆ Body often light in color
- ◆ Often "logging" (resting) at surface
- ◆ Lifts flukes into the air before deep dives

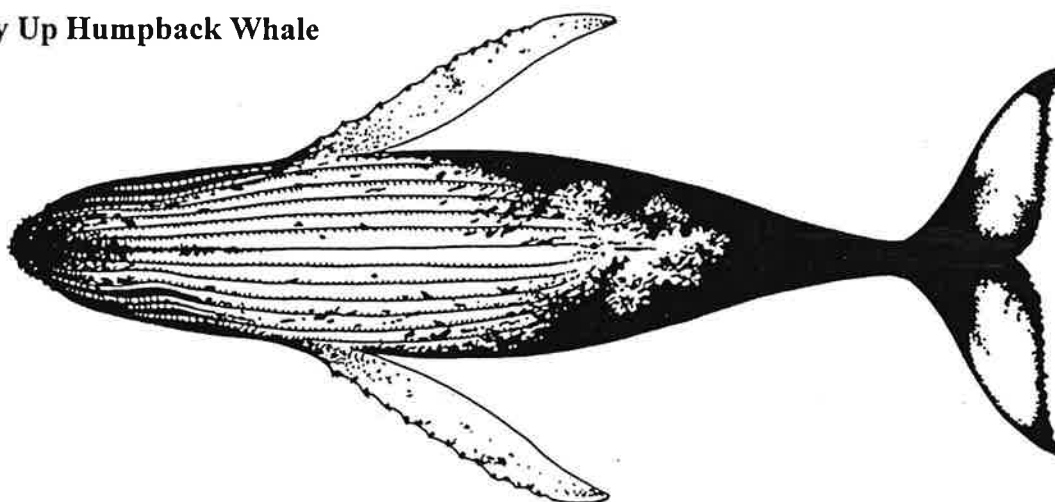
Belly Up Right Whale



- ◆ Smooth belly with **no throat grooves**
- ◆ Pectoral flippers squarish in shape
- ◆ Belly may have white areas or be all black

- ◆ Tail flukes with smooth trailing edges, and taper to narrow, pointy tips
- ◆ Chin square-shaped with large encrusted growths on either side

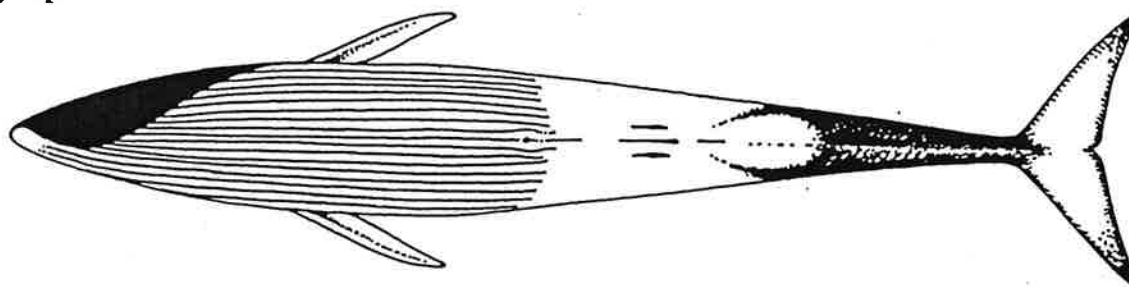
Belly Up Humpback Whale



- ◆ Has **throat grooves**, often ballooned with gas
- ◆ Pectoral flippers very long (about 1/3 body length) with knobby bumps on front edge

- ◆ Trailing edge of tail flukes ragged-looking, with large barnacles on tips
- ◆ Several grapefruit-sized, knobby bumps on jaw and chin

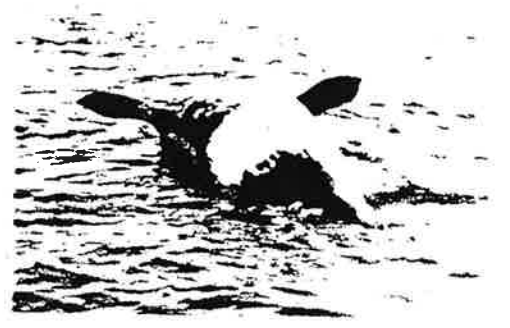
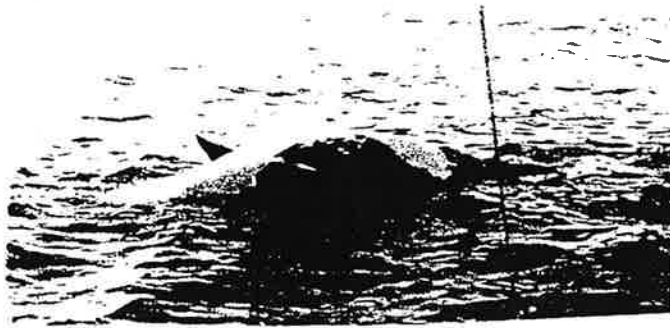
Belly Up Finback Whale



- ◆ Has **throat grooves**, often ballooned with gas
- ◆ Pectoral flippers smooth, slender, and fairly short
- ◆ Tail flukes with smooth trailing edges, and tapering to narrow pointy tips

- ◆ Chin smooth and slender
- ◆ Baleen dark grey on left side and on back half of the right side of the mouth
- ◆ Can be confused with belly up minke whales

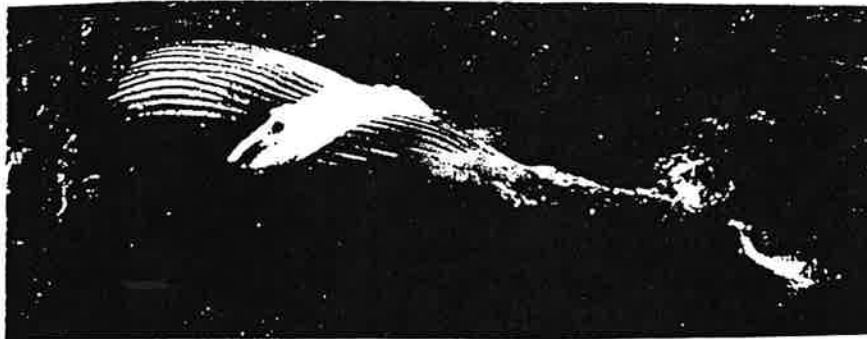
Dead Right Whale



- ◆ Smooth belly with **no throat grooves**
- ◆ Pectoral flippers squarish in shape and up high on body

- ◆ Tail flukes with smooth trailing edges, and taper to narrow, pointy tips
- ◆ Chin square-shaped with large encrusted growths on either side

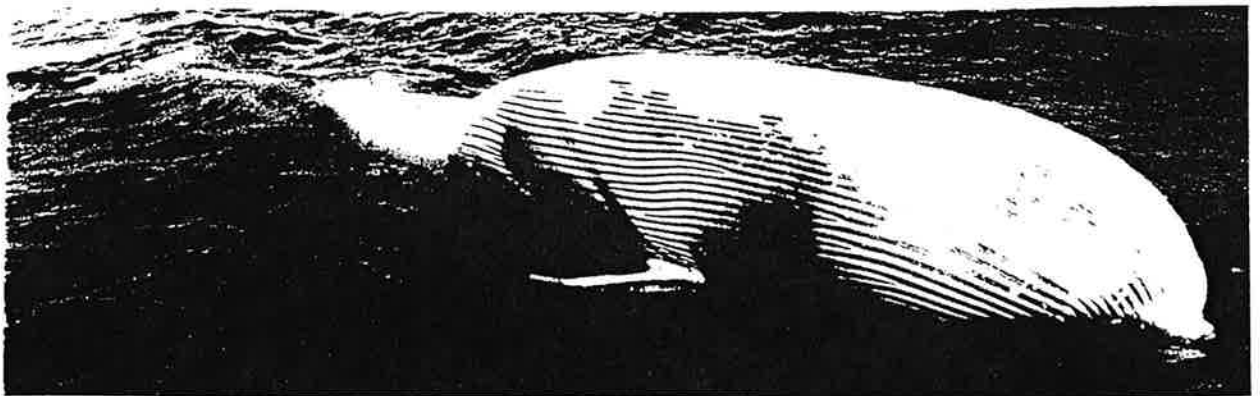
Dead Humpback Whale



- ◆ **Has throat grooves**, often ballooned with gas
- ◆ Pectoral flippers very long (about 1/3 body length) with knobby bumps on front edge

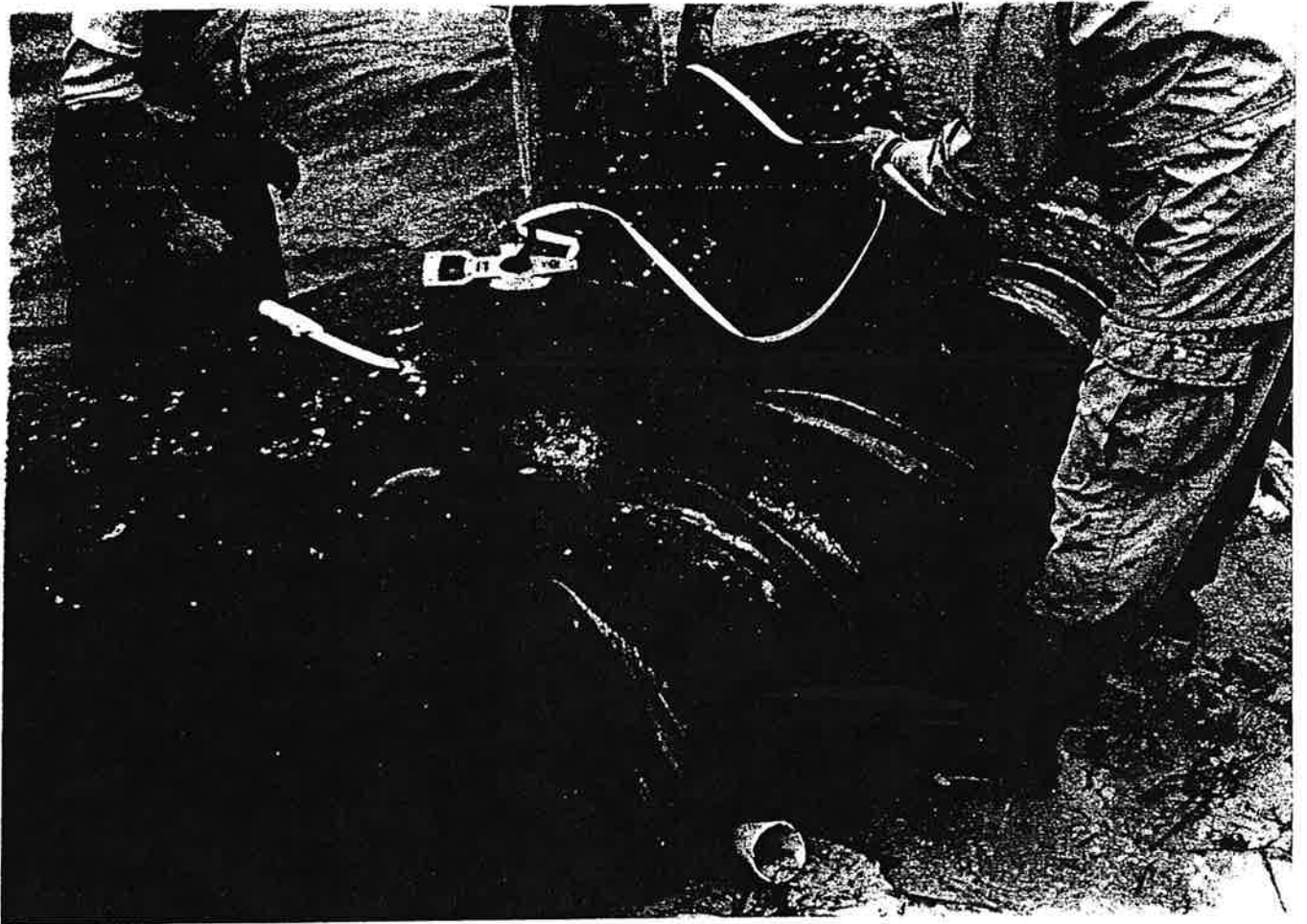
- ◆ Trailing edge of tail flukes ragged-looking, with large barnacles on tips
- ◆ Several grapefruit-sized, knobby bumps on jaw and chin

Dead Finback Whale



- ◆ **Has throat grooves**, often ballooned with gas
- ◆ Pectoral flippers smooth, slender, and fairly short
- ◆ Tail flukes with smooth trailing edges, and tapering to narrow pointy tips

- ◆ Chin smooth and slender
- ◆ Baleen dark grey on left side and on back half of the right side of the mouth
- ◆ See text for notes on identifying dead minke.



A right whale calf showing the injury resulting a ship's propeller. The documentation of whales' injuries, both in writing and with video or still photographs, is extremely valuable.

APPENDIX D

Recommended additions and revisions to the policy guidance documents implementing the International Safety Management Code

- (1) to the extent possible, "environmental protection" would be raised to the level of "marine safety" in the Introduction section of the Marine Safety Manual;
- (2) the "Key Elements" section in the Marine Safety Manual and the "Discussion" section of the Navigation and Vessel Inspection Circular would be expanded to include reference to the Endangered Species Act and the Marine Mammal Protection Act, a discussion of environmental safety and endangered species and, in particular, the potential for collisions with right whales;
- (3) Section "V" (Vessel Inspection Procedures) of "Enclosure (1)" to the Navigation and Vessel Inspection Circular would make specific reference to the requirement that mariners carry and be familiar with Coast Pilots;
- (4) with regard to Volume 9 of the Marine Safety Manual, which specifically addresses environmental protection, the USCG should ensure that it reflects the comments provided here, and allow NMFS the opportunity to review the document and the proposed changes;
- (5) whereas it may not be appropriate to identify and discuss regional endangered marine mammal issues in the Marine Safety Manual or the Navigation and Vessel Inspection Circular, the USCG should work, in consultation with NMFS, to develop materials to "educate" marine safety auditors and regional USCG personnel potentially involved in ship boarding and certification about such issues. These materials might include, but not be limited to, regulations regarding vessel approaches of whales and pinniped haul-out areas, information on the threat of ship strikes to right whales, and guidelines for approaches of whale-watching vessels.