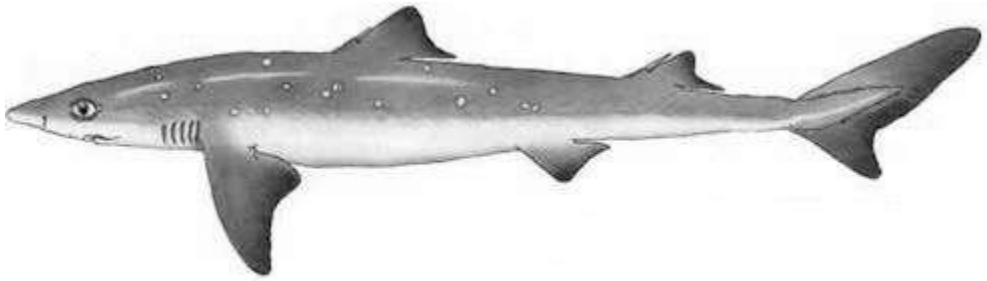
# 2012
# Spiny Dogfish Specifications, Environmental Assessment, and Regulatory Impact Review



April 9, 2012

Prepared by the

Mid-Atlantic Fishery Management Council

in cooperation with the

National Marine Fisheries Service

Mid-Atlantic Fishery Management Council
Suite 201
800 N. State St
Dover, DE 19901
(302) 674 2331

**TABLE OF CONTENTS**


1.0 EXECUTIVE SUMMARY ..... V

2.0 LIST OF ACRONYMS ..... VIII

4.0 INTRODUCTION AND BACKGROUND OF SPECIFICATION PROCESS ..... 1

4.1 PURPOSE AND NEED FOR THE ACTION ..... 1

5.0 MANAGEMENT ALTERNATIVES ..... 3

5.1A ALTERNATIVE 1A – (MID-ATLANTIC COUNCIL RECOMMENDATION – SET QUOTA AT 35.694 M LB AND TRIP LIMIT AT 4,000 LB) ..... 4

5.1B ALTERNATIVE 1B – (NEW ENGLAND COUNCIL RECOMMENDATION – SET QUOTA AT 35.694 M LB AND TRIP LIMIT AT 3,000 LB) ..... 4

5.2 ALTERNATIVE 2 – (CONSISTENT WITH ASMFC – SET QUOTA AT 30.000 M LB AND TRIP LIMIT AT 3,000 LB) . 5

5.3 ALTERNATIVE 3 – (STATUS QUO / NO ACTION - SET QUOTA AT 20.000 M LB AND TRIP LIMITS AT 3,000 LB) .. 5

6.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND FISHERIES ..... 5

6.1 DESCRIPTION OF THE MANAGED RESOURCE ..... 5

*6.1.1 Description of the Fisheries ..... 5*

*6.1.1.1 Spiny Dogfish Stock ..... 6*

*6.1.3 Commercial Fishery Landings ..... 8*

*6.1.3 Non-Target Species ..... 13*

6.2 HABITAT (INCLUDING ESSENTIAL FISH HABITAT) ..... 14

*6.2.1 Physical Environment ..... 15*

*6.2.2 Essential Fish Habitat (EFH) ..... 15*

*6.2.3 Fishery Impact Considerations ..... 15*

6.3 ESA LISTED SPECIES AND MMPA PROTECTED SPECIES ..... 15

*6.3.1 Species Present in the Area ..... 15*

*6.3.2 Species Potentially Affected ..... 17*

6.3.2.1 Sea Turtles ..... 17

6.3.2.2 Large Cetaceans ..... 19

6.3.2.3 Small Cetaceans ..... 20

6.3.2.4 Pinnipeds ..... 20

6.3.2.5 Atlantic Sturgeon ..... 20

6.3.2.6 Species Not Likely to be Affected ..... 21

*6.3.3 Interactions Between Gear and Protected Resources ..... 23*

6.4 HUMAN COMMUNITIES ..... 28

*6.4.2 Commercial Vessel and Dealer Activity ..... 28*

*6.4.2 Commercial Fishery Value ..... 31*

*6.5.3 Port and Community Description ..... 32*

7.0 ENVIRONMENTAL CONSEQUENCES – ANALYSIS OF DIRECT AND INDIRECT IMPACTS ..... 33

*7.1. Biological Impacts ..... 35*

*7.2 Habitat Impacts ..... 36*

*7.3 Endangered Species and MMPA Protected Resource Impacts ..... 36*

*7.3.1 Atlantic Sturgeon Impacts ..... 37*

7.4 HUMAN COMMUNITY IMPACTS ..... 40

7.5 CUMULATIVE EFFECTS ANALYSIS ..... 40

*7.5.1 Consideration of the VECs ..... 40*

*7.5.2 Geographic Boundaries ..... 41*

*7.5.3 Temporal Boundaries ..... 41*

*7.5.4 Actions Other Than Those Proposed in this Amendment ..... 41*

*7.5.5 Magnitude and Significance of Cumulative Effects ..... 43*

7.5.5.1 Managed Resources ..... 47

7.5.5.2 Non-Target Species or Bycatch ..... 49

7.5.5.3 Habitat (Including EFH) ..... 51
7.5.5.4 ESA Listed and MMPA Protected Species ..... 53
7.5.5.5 Human Communities ..... 55
*7.5.6 Preferred Action on all the VECS ..... 57*

8.0 APPLICABLE LAWS ..... 58

8.1 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA) ..... 58
*8.1.1 Finding of No Significant Environmental Impact (FONSI) ..... 58*
8.2 MARINE MAMMAL PROTECTION ACT ..... 62
8.3 ENDANGERED SPECIES ACT ..... 62
8.4 COASTAL ZONE MANAGEMENT ACT ..... 62
8.5 ADMINISTRATIVE PROCEDURES ACT ..... 63
8.6 DATA QUALITY ACT ..... 63
8.7 PAPERWORK REDUCTION ACT ..... 65
8.8 IMPACTS RELATIVE TO FEDERALISM/E.O. 13132 ..... 65
8.9 REGULATORY FLEXIBILITY ACT/E.O. 12866 ..... 65
*8.9.1 Regulatory Impact Review (RIR) and Initial Regulatory Flexibility Analysis (IRFA) ..... 65*
*8.9.2 Description of Management Objectives ..... 66*
*8.9.3 Description of the Fishery ..... 66*
*8.9.4 Statement of the Problem ..... 66*
*8.9.5 Description of the Alternatives ..... 66*
*8.9.6 Economic Analysis ..... 67*
*8.9.7 Determination of Significance under E.O. 12866 ..... 67*
*8.9.8 Initial Regulatory Flexibility Analysis ..... 68*
*8.9.9 Reasons for Considering the Action ..... 68*
*8.9.10 Objectives and Legal Basis for the Action ..... 68*
*8.9.11 Description and Number of Small Entities to Which the Rule Applies ..... 68*
*8.9.12 Recordkeeping and Reporting Requirements ..... 68*
*8.9.13 Duplication, Overlap, or Conflict with Other Federal Rules ..... 68*
*8.9.14 Economic Impacts on Small Entities ..... 69*

10.0 LITERATURE CITED ..... 69

APPENDIX 1 ..... 72

## List of Figures

Figure 1. Specification process for spiny dogfish as described in Amendment 2 to the Spiny dogfish FMP (Omnibus ACL/AM Amendment). ..... 2

Figure 2. Summary of biological characteristics spiny dogfish relevant to the species' commercial fisheries exploitation (from Rago 2010). ..... 6

Figure 3. History of spiny dogfish landings and discards and total catch from 1989 – 2010. From NMFS 2011. ..... 8

Figure 4. NMFS Northeast statistical areas. Shaded areas indicate where spiny dogfish harvest occurs. Red areas comprise 5% or more of harvest and green areas 1% to 5% of harvest. ..... 11

## List of Tables

Table E-1. Qualitative summary of the expected impacts of various alternatives considered for the spiny dogfish specifications ..... vii

Table 1. Values (M lb spiny dogfish) associated with the management alternatives. ..... 4

Table 2. Landings of spiny dogfish (1,000s lb) in the Northwest Atlantic Ocean for calendar years 1989 to 2010. ..... 9

Table 3. Jurisdictional (federal and state) quotas and coastwide landings for fishing years 2000 - 2011. . 10

Table 4. Commercial gear types associated with spiny dogfish harvest in FY2010. Note that vessels with state issued permits only are not required to complete VTRs so total VTR landings are less than total dealer-reported landings. ..... 10

Table 5. Statistical areas that accounted for at least 5 % of the spiny dogfish catch and/or trips in ..... 12

Table 6. Recreational landings (lb) of spiny dogfish by state for 2010. ..... 13

Table 7. Discards associated with the dominant gear types used to harvest spiny dogfish in 2010 as reported in northeast fisheries observer program (NEFOP) data when spiny dogfish were landed. Species comprising 1% or more of the discards by gear are shown. Stock status for each discard species is also indicated (see below) ..... 14

Table 8. Species protected under the Endangered Species Act and Marine Mammal Protection Act that may occur in the operations area for the groundfish fishery.[a] ..... 16

Table 9. Marine Mammals Impacts Based on Groundfishing Gear and Northeast Multispecies Fishing Areas (Based on 2010 List of Fisheries) ..... 26

Table 10. Federally permitted dogfish vessel activity by home port state in FY2010. Active vessels are defined as vessels identified in the dealer reports as having landed spiny dogfish in FY2010. ..... 28

Table 11. Federally permitted spiny dogfish dealers by state in FY2010. Active dealers are defined as dealers identified in the federal dealer reports as having bought spiny dogfish in FY2010. ..... 29

Table 12. Commercial landings (1,000s lb) of spiny dogfish by state from fishing years 1989 through 2009. ..... 30

Table 13. Spiny dogfish landings (lb) by month in FY2010. ..... 31

Table 14. Ex-vessel value and price per pound of commercially landed spiny dogfish, Maine - North Carolina combined, 2000-2010. ..... 31

Table 15. Commercial landings (lb) and value of spiny dogfish by port for fishing year 2010. ..... 32

Table 16. Catches and landings for the management alternatives. ..... 33

Table 17. Percent difference in 2012 landings limits for each alternative relative to 2011 limits and 2010 landings. ..... 33

Table 18. Expected changes in fishing effort that result from changes to landings limits and fish availability. ..... 34

Table 19. Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document). ..... 44

Table 20. Summary of the effects of past, present, and reasonably foreseeable future actions on the managed resource. ..... 48

Table 21. Summary of the effects of past, present, and reasonably foreseeable future actions on the non-target species. ..... 50

Table 22. Summary of the effects of past, present, and reasonably foreseeable future actions on the habitat. ..... 52

Table 23. Summary of the effects of past, present, and reasonably foreseeable future actions on the protected resources. ..... 54

Table 25. Summary of the effects of past, present, and reasonably foreseeable future actions on human communities. ..... 56

Table 26. Magnitude and significance of the cumulative effects; the additive and synergistic effects of the preferred action, as well as past, present, and future actions ..... 57

## 1.0 EXECUTIVE SUMMARY

This spiny dogfish specifications document was prepared by the Mid-Atlantic Fishery Management Council (Council) under consultation with the National Marine Fisheries Service (NMFS). The document's purpose is to present a range of alternative management measures for the U.S. Atlantic spiny dogfish fishery along with a characterization of the environmental impacts of each of those alternatives. The alternatives consist of restrictions on landings by the commercial fishery for spiny dogfish in 2012 and are needed to prevent the fishery from overfishing the spiny dogfish stock. All of the management measures under consideration would be limited to the 2012 fishing year. This document was developed in accordance with a number of applicable laws and statutes that are described in Section 8.0 (see the Table of Contents to locate document sections).

A comparison of the action alternatives relative to "no action" is a requirement under the implementation of the National Environmental Policy Act (NEPA), however in terms of setting a limit on annual landings, "no action" would be a failure to make effort to prevent overfishing, which is inconsistent with the MSA. Therefore, "no action", in this document, is actually a status quo or baseline alternative that would extend existing 2011 measures into the 2012 fishing year.

Among the three quota alternatives, the landings associated with Alternatives 1a and 1b (35.694 M lb) are expected to result in neutral to positive impacts on the spiny dogfish resource (Table E-1). Although Alternatives 1a and1b allow for a 78.5% increase in landings compared to the current fishing year, the spiny dogfish stock is expected to increase anyway; and Alternatives 1a and 1b are consistent with the recommendations of the Council's Science and Statistical Committee (SSC). The Alternative 2 quota (30.0 M lb) would allow for a 50% increase in landings and is also expected to result in neutral to positive impacts on spiny dogfish. Alternative 3 (status quo/no action) maintains current landings (20.0 M lb) and is expected to have positive biological impacts overall on spiny dogfish. Alternative 3 is likely to be more restrictive than necessary to prevent overfishing given the advice of the SSC.

Depending upon whether fishing effort increases or decreases the alternatives are expected to have effects on habitat and EFH as well as ESA-listed and MMPA-protected resources that range from neutral to slightly positive (Box ES-1). Additionally, Alternatives 1a/1b, 2 are associated with positive social and economic impacts for the commercial fishery while Alternative 3 is associated with neutral impacts.

**Alternative 1a – (Mid-Atlantic Council Recommendation; Quota = 35.694 M lb and Trip Limit = 4,000 lb):** For FY2012, specify a commercial quota of 35.694 M lb with a trip limit of 4,000 lb (vessels are prohibited from landing more than 4,000 lb in one calendar day). As per the FMP, the quota would be divided with quota Period 1 (May 1 through October 31) allocated 57.9% of the quota (20.667 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (15.027 M lb).

**Alternative 1b – (NMFS Proposed Action; New England Council Recommendation; Quota = 35.694 M lb and Trip Limit = 3,000 lb):** For FY2012, specify a commercial quota of 35.694 M lb with a (status quo) trip limit of 3,000 lb (vessels are prohibited from landing more than 3,000 lb in one calendar day). As per the FMP, the quota would be divided with quota Period 1

(May 1 through October 31) allocated 57.9% of the quota (20.667 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (15.027 M lb).

**Alternative 2 – (Consistent with ASMFC; Quota = 30.000 M lb and Trip Limit = 3,000 lb):** For FY2012, specify a commercial quota of 30.000 M lb with a (status quo) trip limit of 3,000 lb (vessels are prohibited from landing more than 3,000 lb in one calendar day). As per the FMP, the quota would be divided with quota Period 1 (May 1 through October 31) allocated 57.9% of the quota (17.370 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (8.420 M lb).

**Alternative 3 – ("No Action" Set quota to maintain Status Quo 20.000 M lb Quota and 3,000 lb Trip Limit):** For FY2011, specify a (status quo) commercial quota of 20.000 M lb with (status quo) trip limits of 3,000 lb (vessels are prohibited from landing more than 3,000 lb in one calendar day). As per the FMP, the quota would be divided with quota Period 1 (May 1 through October 31) allocated 57.9% of the quota (11.580 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (8.420 M lb).

Under MSA, the Mid-Atlantic and New England Council had different alternative recommendations. Nevertheless, the FMP allows for disagreement between the Councils on annual management measures and provides that the Northeast Regional Administrator of NMFS may select any alternative that has not been rejected by both Councils. Under MSA and NEPA, NMFS selected Alternative 1b as its proposed action.

According to CEQ regulations, the No Action Alternative should be used for the purposes of evaluating an environmental baseline. A "true" No Action Alternative for dogfish fishery management, however, is not equivalent to status quo or baseline conditions. If the actions proposed in this document are not taken, some current management measures will remain in place (i.e. 3,000 lb trip limit), but the overall management program will not be identical to that of fishing year 2011 (i.e. there would be no specified quota for FY 2012). The "true" No Action Alternative for this fishery is infeasible and inconsistent with the FMP which requires specifications, or quotas, to be established for the fishery. Therefore, the "true" No Action Alternative is not analyzed in this document.

*Impacts of the Management Actions*

Achieving the 35.694 M lb quota under Alternatives 1a and 1b is consistent with preventing overfishing and is based on the SSC and MC recommendations. Alternatives 2 and 3 correspond to harvest levels well below that necessary to prevent overfishing. None of the alternatives are expected to result in significant impacts to non-target species (including fish and protected resources) and habitat. The quota increases under Alternatives 1-2 would result in greater economic benefits compared to Alternative 3. None of the alternatives are associated with significant direct or indirect impacts and all have a positive cumulative impact in the context of other ongoing activities.

Further discussion on the impacts of the alternatives is presented in Section 7.0, and summarized in Table E-1 below. Table E-1 presents a qualitative summary of the direct and indirect impacts of the various management alternatives.

Table E-1. Qualitative summary of the expected impacts of various alternatives considered for the spiny dogfish specifications. A minus sign (-) signifies an expected negative impact, a plus sign (+) a positive impact, and zero indicates a null impact. A "sl" in front of a sign is used to convey a minor effect, such as slight positive (sl+). An 'S' indicates short-term, and an 'L' is indicates long-term impacts.

| Alternatives | | Biological | EFH | Protected Resources | Economic | Social |
|---|---|---|---|---|---|---|
| **Alt. 1a Mid-Atlantic Council Recommendation** | Quota: 35.694 M lb Trip Limits: 4,000 lb | sl+ | sl- | sl- | + | + |
| **Alt. 1b NMFS Proposed Action: New England Council Recommendation** | Quota: 35.694 M lb Trip Limits: 3,000 lb | sl+ | sl- | sl- | + | + |
| **Alt. 2 Consistent with states** | Quota: 30.000 M lb Trip Limits: 3,000 lb | sl+ | sl- | sl- | + | + |
| **Alt. 3 Status Quo / No Action** | Quota: 20.000 M lb Trip Limits: 3,000 lb | + | 0 | 0 | sl+ | sl+ |

### *Cumulative Impacts*

When the proposed action is considered in conjunction with all the other pressures placed on fisheries by past, present, and reasonably foreseeable future actions, it is not expected to result in any significant impacts, positive or negative; therefore, there are no significant cumulative effects associated with the action proposed in this document (see section 7.5).

### *Conclusions*

A detailed discussion of the environmental impacts of the alternatives, as well as any cumulative impacts, considered in this specifications document are provided in section 7.0. The preferred action alternative is not associated with significant impacts to the biological, physical, social or economic, environment individually or in conjunction with other actions under NEPA; therefore, a "Finding of No Significant Impact" is determined.

## 2.0 LIST OF ACRONYMS

| | |
|---|---|
| **ABC** | Annual Biological Catch |
| **ACL** | Annual Catch Limit |
| **ALWTRP** | Atlantic Large Whale Take Reduction Plan |
| **AM** | Accountability Measure |
| **ASAP** | Age Structured Assessment Program |
| **ASMFC** | Atlantic States Marine Fisheries Commission |
| **CEA** | Cumulative Effects Assessment |
| **CEQ** | Council on Environmental Quality |
| **CFR** | Code of Federal Regulations |
| **CV** | Coefficient of Variation |
| **CZMA** | Coastal Zone Management Act |
| **DPS** | Distinct Population Segment |
| **DPSWG** | Data Poor Stocks Working Group |
| **EA** | Environmental Assessment |
| **EEZ** | Exclusive Economic Zone |
| **EFH** | Essential Fish Habitat |
| **EFP** | Exempted Fishing Permit |
| **EIS** | Environmental Impact Statement |
| **EO** | Executive Order |
| **ESA** | Endangered Species Act of 1973 |
| **F** | Fishing Mortality Rate |
| **FR** | Federal Register |
| **FMP** | Fishery Management Plan |
| **FONSI** | Finding of No Significant Impact |
| **HPTRP** | Harbor Porpoise Take Reduction Plan |
| **IRFA** | Initial Regulatory Flexibility Analysis |
| **LNG** | Liquefied Natural Gas |
| **LOF** | List of Fisheries |
| **LWTRP** | Large Whale Take Reduction Plan |
| **MAFMC** | Mid-Atlantic Fishery Management Council |
| **MMPA** | Marine Mammal Protection Act |
| **MRFSS** | Marine Recreational Fisheries Statistical Survey |
| **MSA** | Magnuson-Stevens Fishery Conservation and Management Act |
| **MSY** | Maximum Sustainable Yield |
| **NAO** | NOAA Administrative Order |
| **NEFSC** | Northeast Fisheries Science Center |
| **NEFOP** | Northeast Fisheries Observer Program |
| **NEPA** | National Environmental Policy Act |
| **NERO** | Northeast Regional Office |
| **NMFS** | National Marine Fisheries Service |
| **NOAA** | National Oceanic and Atmospheric Administration |
| **OFL** | Overfishing Limit |
| **OY** | Optimal Yield |
| **PRA** | Paperwork Reduction Act |
| **RFA** | Regulatory Flexibility Act |
| **RIR** | Regulatory Impact Review |
| **RSA** | Research Set-Aside |
| **SARC** | Stock Assessment Review Committee |
| **SAW** | Stock Assessment Workshop |
| **SFA** | Sustainable Fisheries Act |
| **SBA** | Small Business Administration |
| **SSB** | Spawning Stock Biomass |
| **SSC** | Scientific and Statistical Committee |
| **TED** | Turtle Excluder Device |
| **US** | United States |
| **VECs** | Valued Ecosystem Components |
| **VTR** | Vessel Trip Report |

# 4.0 INTRODUCTION AND BACKGROUND OF SPECIFICATION PROCESS

## 4.1 Purpose and Need for the Action

The purpose of this action (specification of spiny dogfish management measures) is to implement the 2012 commercial quota for the U.S. Atlantic spiny dogfish fishery. This action is needed to prevent overfishing and ensure that the required annual catch limit (ACL) for spiny dogfish in 2012 is not exceeded. This document, which describes the action and its impacts, was developed in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the National Environmental Policy Act of 1969 (NEPA), and the Spiny Dogfish Fishery Management Plan (FMP). The MSA is the primary domestic legislation governing fisheries management in the U.S. Exclusive Economic Zone (EEZ) and compliance with the MSA requires preventing overfishing on an ongoing basis. Failure to specify spiny dogfish management measures to prevent overfishing in 2012 would be inconsistent with that legislation. As required by the MSA, the Council's Scientific and Statistical Committee (SSC) provides ongoing advice for preventing overfishing and achieving maximum sustainable yield. The Spiny Dogfish Monitoring Committee (MC), created through the FMP, develops specific management measures which constrain spiny dogfish catch at identified levels. The advice of the SSC and MC form the basis for the Council’s development of the preferred spiny dogfish management measures.

Figure 1 provides a diagram of the process for determining annual spiny dogfish management measures that was outlined in Amendment 2 to the FMP (MAFMC 2011). Accordingly, the SSC first identifies the catch level above which overfishing is occurring (overfishing limit or OFL) as well as the catch below OFL, called acceptable biological catch or ABC, that adequately accounts for scientific uncertainty in the estimate of OFL and the condition of the stock. Next, the MC determines the annual catch limit (ACL) which, if exceeded, would trigger accountability measures (AMs) such as reductions in future year landings. By accounting for assumed Canadian landings in the upcoming year, the catch limit determined by the MC reflects a “domestic ACL. The MC further determines the catch level at or below ACL called the annual catch target (ACT) that accounts for uncertainty in the efficacy of the management measures. The discarded (as opposed to landed) component of that catch is deducted to arrive at the total allowable landings (TAL). Although not obligated under the FMP, the Council then deducts assumed recreational landings from the TAL in order to arrive at an appropriate commercial quota.

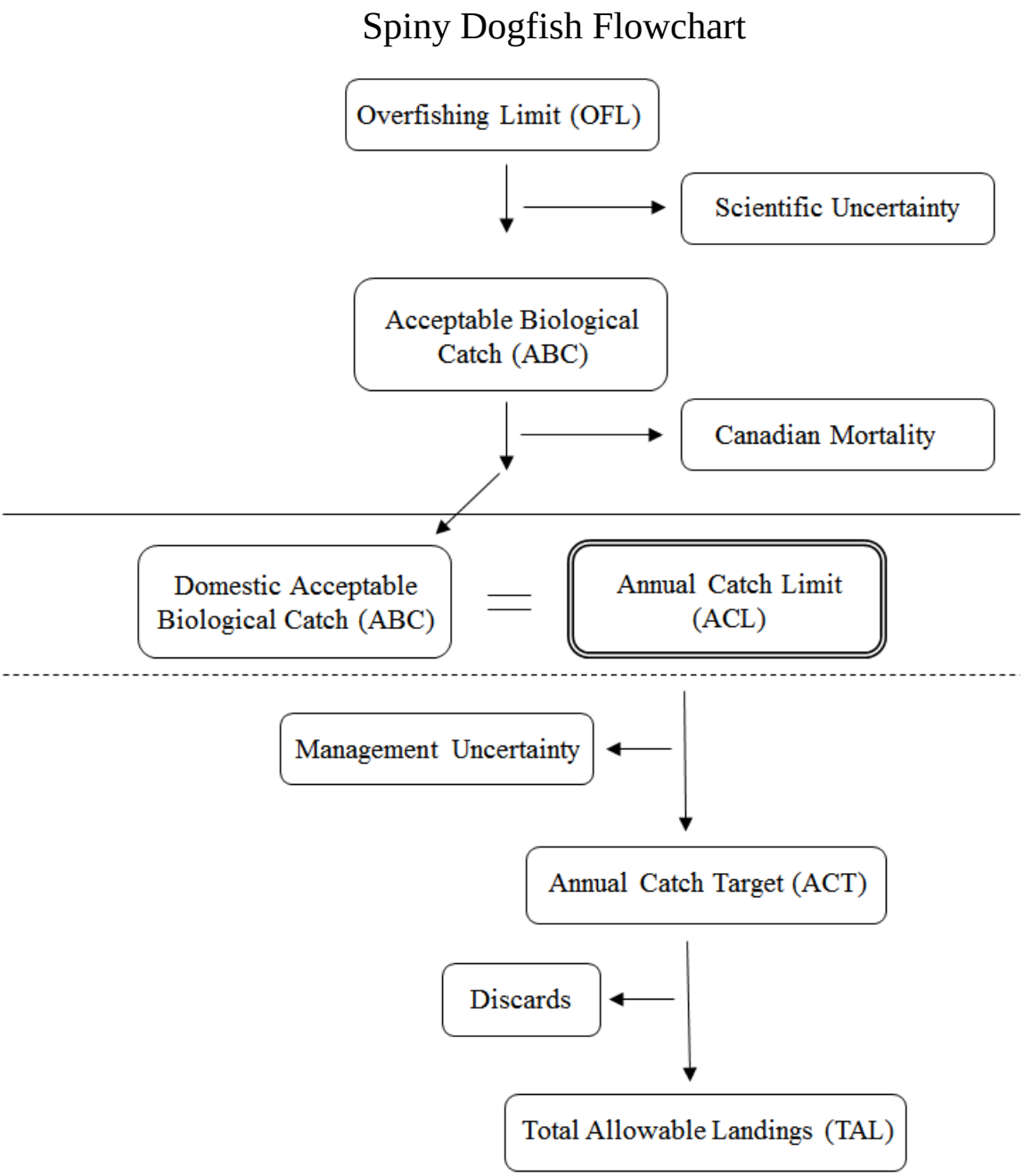



**Figure 1. Specification process for spiny dogfish as described in Amendment 2 to the Spiny dogfish FMP (Omnibus ACL/AM Amendment).**

The SSC, MC, and Council identified values for the management measures listed above according to their respective responsibilities these are reported at www.mafmc.org. An overview is provided here.

For the 2012 fishing year, the SSC determined OFL for spiny dogfish to be 55.404 M lb and the ABC to be 44.868 M lb. ABC is 80.75 % of OFL and is associated with a 40 % probability of overfishing. According to the Council's risk policy (MAFMC 2011), management measures based on this ABC will adequately ensure that overfishing does not occur (see SSC report). A domestic ABC (44.737 M lb) was determined by reducing the overall ABC by Canadian landings (131,175 lb). *The domestic ABC is referred to hereafter simply as ABC.* According to the FMP, ACL is set equivalent to ABC and, given the historic landings by the fishery the MC concluded that no deduction to accommodate management uncertainty was needed, so for 2012, spiny dogfish ABC = ACL = ACT = 44.737 M lb. Estimated discards for the 2012 fishery are the observed level from 2010 (8.997 M lb). After deducting for discards, the resulting TAL is 35.740 M lb. An additional deduction for recreational landings (46,297 lb) results in a commercial quota of 35.694 M lb.

Besides conveying the Councils' management alternatives to the NMFS Regional Administrator, this specifications document also serves as an environmental assessment (EA) under NEPA and provides the Regional Administrator with a characterization of the impacts of the various management alternatives. Aspects of the affected environment likely to be directly or indirectly affected by the management alternatives are referred to as *valued ecosystem components* (VECs; Beanlands and Duinker 1984). These VECs comprise the affected environment and are specifically defined as the managed resource (spiny dogfish any non-target species); habitat including EFH for the managed resource and non-target species; protected species considered by the endangered species act (ESA) and marine mammal protection act (MMPA); and social and economic aspects of human communities.

The NMFS Regional Administrator will review the alternatives in this document and may make revisions if necessary to achieve FMP objectives and statutory requirements. Because the FMP is jointly managed with the New England Council, when the Councils do not recommend identical management measures, the Regional Administrator may select any management measure not rejected by both Councils. The Mid-Atlantic and New England Councils met in October and November 2011 respectively.

## 5.0 MANAGEMENT ALTERNATIVES

There are three quota-setting alternatives under consideration in this document. An analysis of Alternatives 1a/1b and 2 relative to "no action" (i.e., Alternative 3) is a requirement under the implementation of NEPA. However, "no action", in this case, would be a failure to make efforts to prevent overfishing, which is inconsistent with the MSA. Therefore, for the purposes of this document, "no action" is actually a status quo or baseline alternative that would extend existing 2011 management measures into the 2012 fishing year.

The ABC, ACL, and ACTs under Alternatives 1a/1b and 2, as well as the commercial quota for all alternatives are given below in Table 1. For no-action (Alternative 3), only a commercial quota and trip limit are considered since provisions requiring specification of ABC, ACL and ACT were only recently implemented through Amendment 2. A comparison of the action

alternatives to "no action" is provided, however, since only commercial quotas and trip limits, which all the alternatives consider, are subject to impact analysis.

**Table 1. Values (M lb spiny dogfish) associated with the management alternatives.**

| Alternatives | ABC | ACL | ACT | TAL | Commercial Quota | Trip Limit |
|---|---|---|---|---|---|---|
| Alternative 1a (Mid-Atlantic Council Recommendation) | 44.737 | | | 35.740 | 35.694 | 4,000 |
| Alternative 1b (NMFS Proposed Action; New England Council Recommendation) | | | | | 35.694 | 3,000 |
| Alternative 2 (Consistent with ASMFC) | | | | | 30.000 | 3,000 |
| Alternative 3 (Status quo; No Action) | NA | NA | NA | NA | 20.000 | 3,000 |

### 5.1a Alternative 1a – (Mid-Atlantic Council Recommendation – Set Quota at 35.694 M lb and Trip Limit at 4,000 lb)

For FY2012, specify a commercial quota of 35.694 M lb with trip limits of 4,000 lb (vessels are prohibited from landing more than the specified amount in one calendar day). As per the FMP, the quota would be divided with quota Period 1 (May 1 through October 31) allocated 57.9% of the quota (20.667 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (15.027 M lb).

In selecting this alternative, the Mid-Atlantic Council is recommending that the maximum 2012 harvest be taken that was identified by the SSC and MC as preventing overfishing and also that the harvest available per trip increase as well (i.e., increased trip limits). This recommendation was intended to maximize economic benefits to fishery participants in 2012 given the substantial biomass of spiny dogfish available for harvest. The recommendation does not attempt to accommodate or reduce conflict with state regulations made by the ASMFC since the Council recommendation (October 2011) was made prior to the ASMFC (November 2011) decision.

### 5.1b Alternative 1b – (NMFS Proposed Action; New England Council Recommendation – Set Quota at 35.694 M lb and Trip Limit at 3,000 lb)

For FY2012, specify a commercial quota of 35.694 M lb with trip limits of 3,000 lb (vessels are prohibited from landing more than the specified amount in one calendar day). As per the FMP, the quota would be divided with quota Period 1 (May 1 through October 31) allocated 57.9% of the quota (20.667 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (15.027 M lb).

In selecting this alternative, the New England Council is recommending that the maximum 2012 harvest be taken that was identified by the SSC and MC as preventing overfishing but the rate of

harvest be maintained at current levels (i.e., status quo trip limits). This recommendation was intended to maximize overall economic benefits to fishery participants in 2012 but reduce potential conflict with the ASMFC possession limit measures. The recommendation is sensitive to measures established by the ASMFC since Council deliberation (November 17, 2011) was informed by the ASMFC decision (November 10, 2011).

### 5.2 Alternative 2 – (Consistent with ASMFC – Set Quota at 30.000 M lb and Trip Limit at 3,000 lb)

For FY2012, specify a commercial quota of 30.000 M lb with trip limits of 3,000 lb (vessels are prohibited from landing more than the specified amount in one calendar day). As per the FMP, the quota would be divided with quota Period 1 (May 1 through October 31) allocated 57.9% of the quota (17.370 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (12.630 M lb).

This alternative is included to so that the Councils' recommendations could be evaluated in light of management measures currently established for 2012 by the ASMFC. The lower quota and status quo trip limit established by the ASMFC were intended to prevent oversupply of spiny dogfish to processors and any associated potential for reduced price to harvesters. This potential outcome was described through public testimony to the ASMFC and is not the result of analysis presented in this specifications package.

### 5.3 Alternative 3 – (Status Quo / No Action - Set quota at 20.000 M lb and Trip Limits at 3,000 lb)

For FY2012, specify a commercial quota of 20.000 M lb with a trip limit of 3,000 lb (vessels are prohibited from landing more than the specified amount in one calendar day). As per the FMP, the quota would be divided with quota Period 1 (May 1 through October 31) allocated 57.9% of the quota (11.580 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (8.420 M lb).

Under MSA, the Mid-Atlantic and New England Council had different alternative recommendations. Nevertheless, the FMP allows for disagreement between the Councils on annual management measures and provides that the Northeast Regional Administrator of NMFS may select any alternative that has not been rejected by both Councils. Under MSA and NEPA, NMFS selected Alternative 1b as its proposed action.

## 6.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND FISHERIES

### 6.1 Description of the Managed Resource

#### 6.1.1 Description of the Fisheries

The management unit for spiny dogfish is all spiny dogfish in U.S. waters of the western Atlantic Ocean. The commercial fishery is fully described in Section 2.3 of the FMP (MAFMC 1999). No significant recreational fishery exists for this stock. An overview of the stock and associated commercial fishery landings is provided below.

### 6.1.1.1 Spiny Dogfish Stock

Reports on "Stock Status," including annual assessment updates, Stock Assessment Workshop (SAW) reports, Stock Assessment Review Committee (SARC) panelist reports and peer-review panelist reports are available online at the NEFSC website: http://www.nefsc.noaa.gov. EFH Source Documents, which include details on stock characteristics and ecological relationships, are available at the following website: http://www.nefsc.noaa.gov/nefsc/habitat/efh/.

Figure 2 below provides a snapshot of several relevant characteristics of the spiny dogfish stock that influence management of the commercial fishery. Among these are: 1) Spiny dogfish are slow growing and, therefore, recovery of an overly exploited stock can require prolonged rebuilding. 2) Males and females grow at different rates and to different maximum sizes such that the largest fish in the population are almost all female and these are more valuable to the commercial fishery. 3) Litter size, or fecundity, increases with age such that productivity can be markedly hampered by an absence of large females in the stock. 4) Maturity is delayed (12-21 years) in females such that the immature stock is susceptible to mortality for a prolonged period before contributing to stock production.

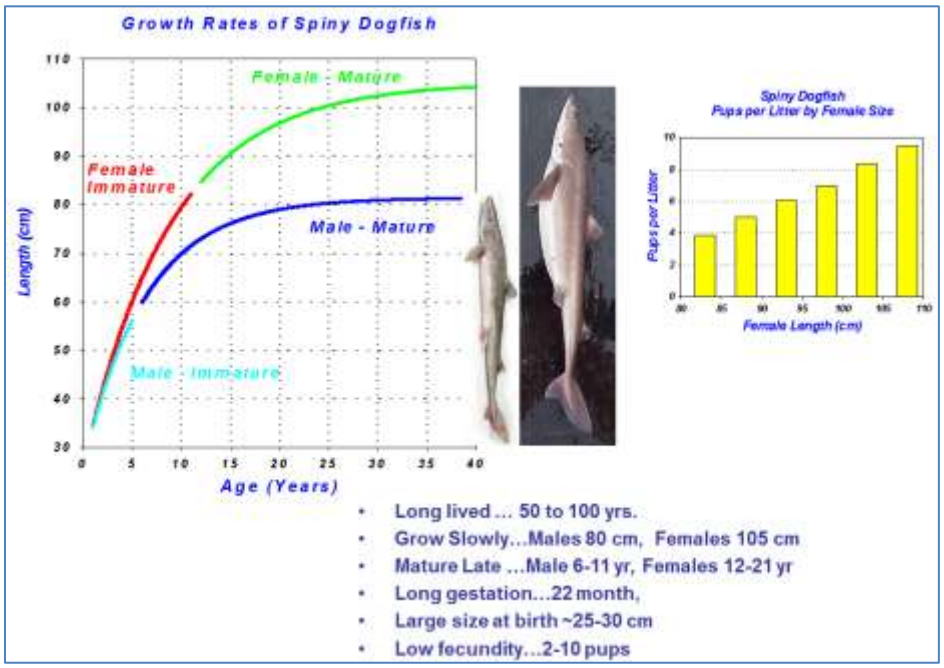



**Figure 2. Summary of biological characteristics spiny dogfish relevant to the species' commercial fisheries exploitation (from Rago 2010 unpubl.).**

*Historical Stock Condition*

At the onset of the domestic commercial fishery in the early 1990's, population biomass for the Northwest Atlantic stock of spiny dogfish was at its highest estimated level (approx. 1.2 billion lb). A large scale unregulated fishery developed and quickly depleted the stock of mature female spiny dogfish such that in 1997 a stock assessment showed that the stock was *overfished* (NEFSC 1997). The Spiny Dogfish FMP was developed in 1998 and implemented in 2000 in order to halt further depletion of mature female spiny dogfish and allow the stock to recover to a sustainable level. Because the directed commercial fishery concentrated on mature females,

rebuilding required elimination of that directed fishery. The rebuilding program was highly successful and in 2010 the Northeast Regional Office (NERO) of NMFS communicated the *rebuilt* status of the stock to the Councils.

*Current Stock Condition*

Not Overfished

The Bmsy reference point defines when the stock is rebuilt (above Bmsy) and overfished (below ½ Bmsy). For spiny dogfish, Bmsy (proxy) is the spawning stock biomass that maximizes recruitment (SSBmax) in a Ricker type (dome-shaped) stock-recruitment model. SSBmax is estimated to be 159,288 mt (351 M lb) with ½ of that target corresponding to the biomass threshold (79,644 mt; 175.5 M lb). In September 2011, the Northeast Fisheries Science Center (NEFSC) updated their assessment of the spiny dogfish stock using catch data (2010), and results from the 2011 trawl survey. The updated estimate of SSB for 2011 is 169,415 mt (373.496 M lb), about 6% above $SSB_{max}$ (159,288 mt ). In updating the assessment, the NEFSC estimated a *100% probability that the stock is not overfished*.

Overfishing not Occurring

A review by the Council's SSC in 2011 was conducted to establish its endorsement of a fishing mortality reference point that defines when overfishing is occurring (Fmsy). The updated fishing mortality reference point provided by the NEFSC is $F_{msy} = 0.2439$. All accountable sources of removals contribute to the estimate of fishing mortality (F) under the current assessment. For the most recent assessment year (2010), these include U.S. commercial landings (12.346 M lb), Canadian commercial landings (6 mt), U.S. dead discards (8.997 M lb), and U.S. recreational landings (46,297 lb). Total removals in 2010 were approximately 21.330 M lb corresponding to an F estimate of 0.09, well below $F_{msy} = 0.2439$. In updating the assessment, the NEFSC estimated a *100% probability that overfishing was not occurring* ($F_{2010} < F_{threshold}$).

### 6.1.3 Commercial Fishery Landings

Calendar year harvest estimates from 1989 -2010 are provided in Table 2 and Figure 3. These include landings from U.S. commercial and recreational sectors as well as the Canadian commercial fishery. A thorough characterization of the historic (pre-FMP) fishery for spiny dogfish is given in Section 2.3 of the FMP (MAFMC 1999).

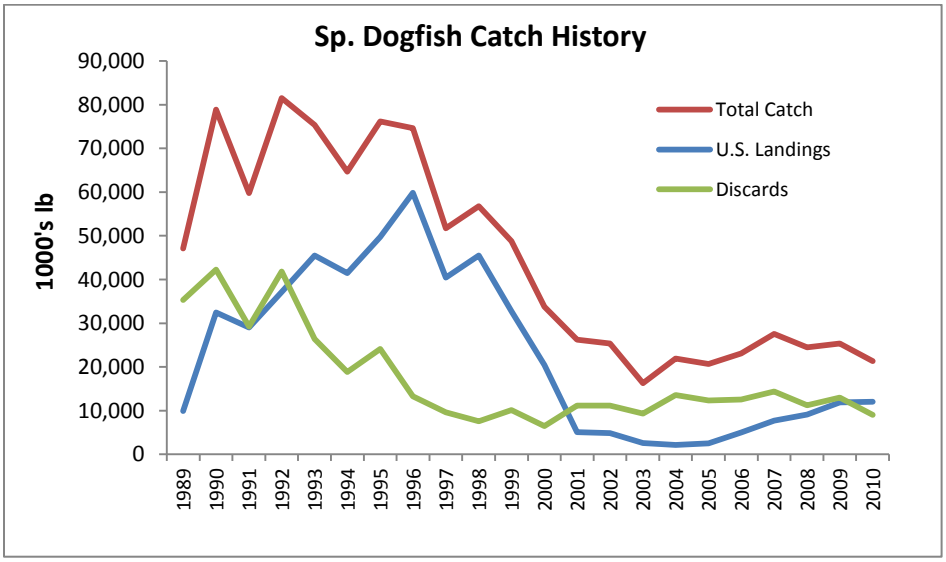



**Figure 3. History of spiny dogfish landings and discards and total catch from 1989 – 2010. From NMFS 2011.**

**Table 2. Landings of spiny dogfish (1,000s lb) in the Northwest Atlantic Ocean for calendar years 1989 to 2010.**

| Year | US Comm | US Rec | Canada | Total (NW Atl.Stock) |
|---|---|---|---|---|
| 1989 | 9,903 | 922 | 368 | 11,193 |
| 1990 | 32,476 | 395 | 2,886 | 35,757 |
| 1991 | 29,050 | 289 | 677 | 30,016 |
| 1992 | 37,166 | 474 | 1,914 | 39,554 |
| 1993 | 45,510 | 265 | 3,164 | 48,939 |
| 1994 | 41,442 | 342 | 4,012 | 45,796 |
| 1995 | 49,776 | 150 | 2,108 | 52,034 |
| 1996 | 59,825 | 55 | 950 | 60,830 |
| 1997 | 40,457 | 146 | 983 | 41,586 |
| 1998 | 45,477 | 86 | 2,326 | 47,889 |
| 1999 | 32,750 | 117 | 4,610 | 37,477 |
| 2000 | 20,408 | 11 | 6,043 | 26,462 |
| 2001 | 5,057 | 62 | 8,422 | 13,541 |
| 2002 | 4,848 | 452 | 7,901 | 13,201 |
| 2003 | 2,579 | 88 | 2,870 | 5,537 |
| 2004 | 2,165 | 231 | 5,207 | 7,603 |
| 2005 | 2,529 | 99 | 5,004 | 7,632 |
| 2006 | 4,958 | 207 | 5,377 | 10,542 |
| 2007 | 7,723 | 185 | 5,256 | 13,164 |
| 2008 | 9,057 | 472 | 3,466 | 12,995 |
| 2009 | 11,854 | 75 | 249 | 12,178 |
| 2010 | 12,347 | 35 | 13 | 12,395 |

Source: NMFS Commercial Fisheries Database, MRFSS data, and NAFO data.

*Coastwide Landings Relative to Limits (Quotas)*

Table 3 provides the coastwide quotas and landings for the spiny dogfish fishery since the establishment of the FMP in 2000. Toward the end of the federal rebuilding schedule that ended in 2010, substantial increases in stock biomass allowed for an increase in the federal quota in 2009 to 12 M lb while still maintaining the rebuilding fishing mortality rate. Under the interstate FMP, quota increases began earlier in 2006 – 2008 (Table 3). Note that in 2010-2011, the commercial quota implemented in state waters was lower than for federal waters. Both quotas were based on the same technical advice, however, the state water quota reflects reductions for overages in accordance with Addendum 2 to the ISFMP. Similar accountability measures will be applied in federal waters in accordance with Amendment 2 to the federal FMP.

**Table 3. Jurisdictional (federal and state) quotas and coastwide landings for fishing years 2000 - 2011.**

| Fishing year (May 1 - Apr 30) | Quota (M lb) Federal | Quota (M lb) States' | Landings (M lb) |
|---|---|---|---|
| 2000 | 4.0 | n/a | 8.2 |
| 2001 | 4.0 | n/a | 5.1 |
| 2002 | 4.0 | n/a | 4.8 |
| 2003 | 4.0 | 8.8 | 3.2 |
| 2004 | 4.0 | 4.0 | 1.5 |
| 2005 | 4.0 | 4.0 | 2.6 |
| 2006 | 4.0 | 6.0 | 6.6 |
| 2007 | 4.0 | 6.0 | 6.5 |
| 2008 | 4.0 | 8.0 | 9.0 |
| 2009 | 12.0 | 12.0 | 11.8 |
| 2010 | 15.0 | 14.4 | 14.5 |
| 2011 | 20.0 | 19.5 | - |

*Landings by Gear*

Certain commercial gear types are associated with the retention of spiny dogfish in federal waters. The catch of spiny dogfish by gear in FY2010 is given in Table 4. Spiny dogfish landings came mostly from sink gillnets (67.58%), bottom otter trawls (20.23%), hook and line (11.58%), as well as unknown or other gear (0.61%).

**Table 4. Commercial gear types associated with spiny dogfish harvest in FY2010. Note that vessels with state issued permits only are not required to complete VTRs so total VTR landings are less than total dealer-reported landings.**

| Commercial Gear Type | Landings (lb) | Pct Total |
|---|---|---|
| GILL NET | 6,943,668 | 67.58% |
| TRAWL, OTTER, BOTTOM | 2,078,172 | 20.23% |
| HOOK AND LINE | 1,189,466 | 11.58% |
| OTHER | 63,064 | 0.61% |
| **TOTAL** | **10,274,370** | **100.00%** |

Source: Vessel Trip Reports

*Landings by Area*

The Northeast Region is divided into 46 statistical areas for federal fisheries management (Figure 4). According to VTR data, six statistical areas collectively accounted for 73.04 % of spiny dogfish landings in 2010, with each contributing greater than 5.0 % of the total (Table 5). These areas also represented 73.5% of the trips that landed spiny dogfish suggesting that resource availability as expressed by catch per trip is fairly consistent through the range where harvest occurs.

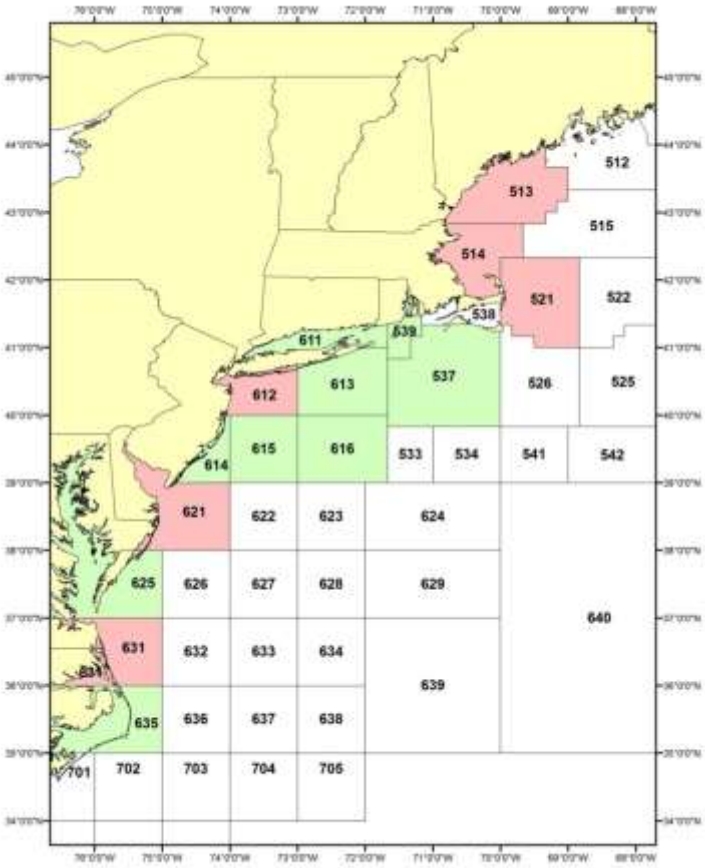



**Figure 4. NMFS Northeast statistical areas. Shaded areas indicate where spiny dogfish harvest occurs. Red areas comprise 5% or more of harvest and green areas 1% to 5% of harvest.**

**Table 5. Statistical areas that accounted for at least 5 % of the spiny dogfish catch and/or trips in FY2010 VTR data. Shading (red or green) is provided for reference with Figure 4.**

| Statistical Area | Catch (%) | Trips (%) |
|---|---|---|
| 514 | 26.91% | 25.11% |
| 521 | 17.21% | 15.34% |
| 513 | 15.56% | 12.86% |
| 631 | 4.25% | 7.64% |
| 612 | 5.96% | 6.63% |
| 621 | 3.60% | 5.47% |
| 537 | 4.67% | 4.97% |
| 539 | 4.01% | 3.55% |
| 635 | 1.94% | 3.41% |
| 615 | 2.61% | 3.25% |
| 613 | 3.04% | 2.90% |
| 616 | 1.81% | 2.54% |
| 625 | 1.76% | 2.15% |
| 611 | 2.31% | 1.46% |
| 614 | 1.09% | 1.10% |

Source: Vessel Trip Report database

*Canadian Commercial Spiny Dogfish Landings*

Historic Canadian commercial landings have been low relative to landings from the U.S. commercial fishery (Table 2). In 2001, following the implementation of the U.S. Federal FMP, Canadian landings exceeded U.S. landings for the first time. In 2008, Canadian landings were about 3.5 M lb, but in 2009 landings dropped precipitously to about 250,000 lb. In 2010, the increased availability of U.S. spiny dogfish continued to constrain demand for Canadian product (pers. comm. Barndollar[1] and Marder[2] 2011) even though Canada has allowed a directed fishery under a 2,500 mt (5.512 M lb) quota with no trip limits. In 2010 Canadian landings dropped further to 13,000 lb.

*Recreational Landings*

As previously stated, no significant recreational fishery exists for spiny dogfish. Some retention of recreationally caught spiny dogfish does occur, however. Recreational landings by state for 2010 are provided in Table 6 below.

[1] Steve Barndollar is on the MAFMC's Spiny Dogfish Advisory Panel and is the owner of Seatrade Int'l, one of the primary processors of U.S. and Canadian spiny dogfish on the Atlantic Coast. He attended the Spiny Dogfish Monitoring Committee meeting in September 2011.

[2] Brian Marder is the owner of Marder Trawling, Inc., a major processor of U.S. and Canadian spiny dogfish on the Atlantic Coast. He attended the Spiny Dogfish Monitoring Committee meeting in September 2011.

**Table 6. Recreational landings (lb) of spiny dogfish by state for 2010.**

| State | Landings (lb) | Pct of Total |
|---|---|---|
| NORTH CAROLINA | 16,052 | 46.43% |
| SOUTH CAROLINA | 7,531 | 21.78% |
| NEW JERSEY | 4,650 | 13.45% |
| DELAWARE | 3,521 | 10.18% |
| MARYLAND | 1,041 | 3.01% |
| NEW HAMPSHIRE | 977 | 2.83% |
| MASSACHUSETTS | 443 | 1.28% |
| VIRGINIA | 359 | 1.04% |
| **TOTAL** | **34,574** | **100.00%** |

Source: Marine Recreational Fisheries Statistical Survey Data

### 6.1.3 Non-Target Species

Discards of non-target species in the directed spiny dogfish fishery are difficult to characterize since defining the directed fishery can be done a number of ways. Gear-specific landings data suggest that catch composition varies among gears and that some gear (e.g., bottom longline) are more likely to produce catches that are predominantly spiny dogfish, while other gear (e.g., bottom trawls) are characterized by a more diverse catch. Discards have been tabulated for observed trips in 2010 where any dogfish were retained and are summarized in Table 7. On gillnet trips, spiny dogfish comprised 53.44% of total observed discards, with other major discard species including lobster (15.76%), cod (5.95%), and winter skate (5.35%). All other species combined (56) comprised 19.50% of total discards. On observed bottom longline trips, a total of 17 species besides spiny dogfish were accounted for in the discards. Spiny dogfish comprised 76.9% of total discards, little skate comprised 5.89% and no other species comprised more than 5%. On observed trawl trips, spiny dogfish comprised 41.35% of discards, with a total of 99 other discard species. Among these were little skate (10.73%), and red hake (5.45%) and no other species comprising more than 5%. .

**Table 7. Discards associated with the dominant gear types used to harvest spiny dogfish in 2010 as reported in northeast fisheries observer program (NEFOP) data when spiny dogfish were landed. Species comprising 1% or more of the discards by gear are shown. Stock status for each discard species is also indicated (see below)**

| Hook and Line | | | Gill Net, Sink | | | Trawl, Otter, Bottom | | |
|---|---|---|---|---|---|---|---|---|
| **Discard Species** | **Discards (lb)** | **Pct Of Total for this Gear** | **Discard Species** | **Discards (lb)** | **Pct Of Total for this Gear** | **Discard Species** | **Discards (lb)** | **Pct Of Total for this Gear** |
| DOGFISH, SPINY [a,b] | 4,694 | 76.85% | DOGFISH, SPINY [a,b] | 11,288 | 53.44% | DOGFISH, SPINY [a,b] | 146,003 | 41.35% |
| SKATE, LITTLE [a,b] | 360 | 5.89% | LOBSTER [a,b] | 3,329 | 15.76% | SKATE, LITTLE [a,b] | 37,892 | 10.73% |
| SKATE, THORNY [a,d] | 269 | 4.41% | COD, ATLANTIC [d,e] | 1,257 | 5.95% | HAKE, RED [a,b] | 19,251 | 5.45% |
| HALIBUT, ATL. [a,e] | 189 | 3.10% | SKATE, WINTER [a,b] | 1,130 | 5.35% | HAKE, SILVER [a,b] | 15,189 | 4.30% |
| WOLFFISH, ATL. [n/a] | 176 | 2.87% | RAVEN, SEA [n/a] | 819 | 3.88% | SKATE, WINTER [a,b] | 14,459 | 4.10% |
| OCEAN POUT [a,e] | 101 | 1.65% | SKATE, THORNY [a,d] | 362 | 1.71% | SKATE, NK [n/a] | 14,146 | 4.01% |
| SKATE, WINTER [a,b] | 81 | 1.32% | FLOUNDER, WINTER [d,e] | 350 | 1.65% | FISH, NK [n/a] | 12,504 | 3.54% |
| SCULPIN [n/a] | 72 | 1.18% | MONKFISH [a,b] | 291 | 1.38% | BUTTERFISH [a,d] | 11,321 | 3.21% |
| OTHER (10 sp.) | 168 | 2.75% | CRAB, JONAH [n/a] | 270 | 1.28% | HAKE, NK [n/a] | 7,198 | 2.04% |
| | | | SKATE, LITTLE [a,b] | 230 | 1.09% | FLOUNDER, WINTER [d,e] | 6,312 | 1.79% |
| | | | POLLOCK [a,b] | 214 | 1.01% | DOGFISH, SMOOTH [a, b] | 5,807 | 1.64% |
| | | | BLUEFISH [a,b] | 210 | 1.00% | SCUP [a,b] | 5,614 | 1.59% |
| | | | OTHER (48 sp.) | 1,373 | 5.18% | CRAB, LADY [n/a] | 4,958 | 1.40% |
| | | | | | | FLOUNDER, FOURSPOT [n/a] | 4,008 | 1.14% |
| | | | | | | HAKE, RED/WHITE MIX [a,b, / d, e] | 3,937 | 1.12% |
| | | | | | | FLOUNDER, SUMMER [a,b] | 3,554 | 1.01% |
| | | | | | | OTHER (84 sp.) | 40,914 | 11.59% |
| **Total** | **6,108** | **100%** | **Total** | **21,122** | **100%** | **Total** | **353,066** | **100%** |

[a] not overfished, [b] overfishing not occurring, [c] overfished vs. not overfished is unknown, [d] overfished, [e] overfishing is occurring, [f] overfishing unknown, [n/a] not applicable

Source: Northeast Fishery Observer Program, 3rd Quarter 2011 NMFS Fish Stock Sustainability Index

## 6.2 Habitat (Including Essential Fish Habitat)

A description of the habitat associated with the spiny dogfish fishery is presented in Section 2.2 of the FMP (MAFMC 1999), and a brief summary of that information is given here. The impact of fishing on spiny dogfish habitat (and EFH) as well as the impact of the fishery on other species' habitats and EFH can also be found in Section 2.2 of the FMP (MAFMC 1999). Potential impacts on habitat (including EFH) associated with the actions proposed in this specifications document are discussed in section 7.2.

### 6.2.1 Physical Environment

A characterization of the physical environment of the Northeast U.S. Shelf was provided in Section 6.2 of the 2011 specifications document (MAFMC 2011). An additional inventory of the physical and biological characteristics of specific habitats found within the jurisdiction of the Northeast Region can be found in Stevenson et al. (2004). Spiny dogfish are not associated with any particular substrate type or submerged aquatic vegetation (SAV; NMFS 2007). Temperature (3 – 18˚C) and salinity (30-35 ppt) associations have been observed in surveys that catch spiny dogfish juveniles and adults (NMFS 2007).

### 6.2.2 Essential Fish Habitat (EFH)

Information on spiny dogfish habitat requirements can be found in the documents titled, "Essential Fish Habitat Source Document: Spiny Dogfish, *Squalus acanthias*, Life History and Habitat Characteristics" (Stehlik 2007). Electronic versions of these source documents are available at the following website: http://www.nefsc.noaa.gov/nefsc/habitat/efh/. The current EFH designation definitions by life history stage for spiny dogfish are available at the following website: http://www.nero.noaa.gov/hcd/list.htm.

### 6.2.3 Fishery Impact Considerations

A baseline fishing effects analysis is provided in the FMP (MAFMC 1999). The evaluation of the habitat impacts of bottom otter trawls, gillnets, and longlines used in the commercial spiny dogfish fishery indicated that the baseline impact of the fishery was minimal and temporary in nature. Consequently, adverse effects of the spiny dogfish fishery on EFH did not need to be minimized. Since 82% of spiny dogfish landings in fishing year 2010 were from gillnets (68 %) and longlines (14%), and trawl landings (18%) tend to be non-directed, the adverse impacts of the spiny dogfish fishery have continued to be minimal during 2010. Potential impacts of the proposed 2012 commercial quota are evaluated in section 7.1 of this EA.

## 6.3 ESA Listed Species and MMPA Protected Species

There are numerous species that inhabit the environment within the Spiny Dogfish FMP management unit, and that therefore potentially occur in the operations area of the spiny dogfish fisheries, that are afforded protection under the Endangered Species Act of 1973 (ESA; i.e., for those designated as threatened or endangered) and/or the Marine Mammal Protection Act of 1972 (MMPA), and are under NMFS' jurisdiction. Seventeen species are classified as endangered or threatened under the ESA, three others are candidate species under the ESA, while the remainder are protected by the provisions of the MMPA.

### 6.3.1 Species Present in the Area

Table 8 lists the species, protected either by the ESA, the MMPA, or both, that may be found in the environment that would be utilized by the fishery. Table 12 also includes three candidate fish species as identified under the ESA. Candidate species are those petitioned species that are actively being considered for listing as endangered or threatened under the ESA, as well as those species for which NMFS has initiated an ESA status review that it has announced in the Federal Register.

Table 8. Species protected under the Endangered Species Act and Marine Mammal Protection Act that may occur in the operations area for the groundfish fishery.[a]

| Species | Status |
|---|---|
| **Cetaceans** | |
| **North Atlantic right whale (*Eubalaena glacialis*)** | **Endangered** |
| **Humpback whale (*Megaptera novaeangliae*)** | **Endangered** |
| **Fin whale (*Balaenoptera physalus*)** | **Endangered** |
| **Sei whale (*Balaenoptera borealis*)** | **Endangered** |
| **Blue whale (*Balaenoptera musculus*)** | **Endangered** |
| **Sperm whale (*Physeter macrocephalus*** | **Endangered** |
| **Minke whale (*Balaenoptera acutorostrata*)** | **Protected** |
| **Pilot whale (*Globicephala spp*.)** | **Protected** |
| **Risso's dolphin (*Grampus griseus*)** | **Protected** |
| **Atlantic white-sided dolphin (*Lagenorhynchus acutus*)** | **Protected** |
| **Common dolphin (*Delphinus delphis*)** | **Protected** |
| **Spotted dolphin (*Stenella frontalis*)** | **Protected** |
| **Bottlenose dolphin (*Tursiops truncatus*)[b]** | **Protected** |
| **Harbor porpoise (*Phocoena phocoena*)** | **Protected** |
| | |
| **Sea Turtles** | |
| **Leatherback sea turtle (*Dermochelys coriacea*)** | **Endangered** |
| **Kemp's ridley sea turtle (*Lepidochelys kempii*)** | **Endangered** |
| **Green sea turtle (*Chelonia mydas*)** | **Endangered[c]** |
| **Loggerhead sea turtle (*Caretta caretta*) Northwest Atlantic DPS** | **Threatened** |
| **Hawksbill sea turtle (*Eretmochelys imbricate*)** | **Endangered** |
| | |
| **Fish** | |
| **Shortnose sturgeon (*Acipenser brevirostrum*)** | **Endangered** |
| **Atlantic salmon (*Salmo salar*)** | **Endangered** |
| | |
| **Atlantic sturgeon *(Acipenser oxyrinchus)*** | |
| **Gulf of Maine DPS** | **Threatened** |
| **New York Bight DPS** | **Endangered** |
| **Chesapeake Bay DPS** | **Endangered** |
| **Carolina DPS** | **Endangered** |
| **South Atlantic DPS** | **Endangered** |
| | |
| **Cusk *(Brosme brosme)*** | **Candidate** |
| **Alewife (*Alosa pseudo harengus*)** | **Candidate** |
| **Blueback herring (*Alosa aestivalis*)** | **Candidate** |
| | |
| **Pinnipeds** | |
| **Harbor seal (*Phoca vitulina*)** | **Protected** |
| **Gray seal (*Halichoerus grypus*)** | **Protected** |
| **Harp seal (*Phoca groenlandicus*)** | **Protected** |
| **Hooded seal (*Cystophora cristata*)** | **Protected** |

Notes:

[a] MMPA-listed species occurring on this list are only those species that have a history of interaction with similar gear types within the action area of the Northeast Multispecies Fishery, as defined in the 2012 List of Fisheries.

[b] Bottlenose dolphin (*Tursiops truncatus*), Western North Atlantic coastal stock is listed as depleted.

[c] 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.

A status review for Atlantic sturgeon was completed in 2007 which indicated that five distinct population segments (DPS) of Atlantic sturgeon exist in the United States (ASSRT 2007). On October 6, 2010, NMFS proposed listing these five DPSs of Atlantic sturgeon along the U.S. East Coast as either threatened or endangered species (75 FR 61872 and 75 FR 61904). A final listing was published on February 6th, 2012 (77 FR 5880 and 75 FR 5914). The GOM DPS of Atlantic sturgeon has been listed as threatened, and the New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs of Atlantic sturgeon have been listed as endangered. Atlantic sturgeon from any of the five DPSs could occur in areas where the multispecies fishery operates. Atlantic sturgeon have been captured in small mesh otter trawl gear, albeit less often than in large mesh otter trawl gear (Stein et al. 2004a, ASMFC 2007).

Candidate species receive no substantive or procedural protection under the ESA; however, NMFS recommends that project proponents consider implementing conservation actions to limit the potential for adverse effects on candidate species from any proposed project. NMFS has initiated review of recent stock assessments, bycatch information, and other information for these candidate and proposed species. The results of those efforts are needed to accurately characterize recent interactions between fisheries and the candidate/proposed species in the context of stock sizes. Any conservation measures deemed appropriate for these species will follow the information reviews. Please note that once a species is proposed for listing the conference provisions of the ESA apply (see 50 CFR 402.10).

### 6.3.2 Species Potentially Affected

The multispecies fishery has the potential to affect the sea turtle, cetacean, and pinniped species discussed below. A number of documents contain background information on the range-wide status of sea turtle and marine mammal species that occur in the area and are known or suspected of interacting with fishing gear (demersal gear including trawls, gillnets, and bottom longlines). These documents include sea turtle status reviews and biological reports (NMFS and USFWS 1995; Turtle Expert Working Group 1998, 2000, 2007, 2009; NMFS and USFWS 2007a, 2007b, recovery plans for ESA-listed cetaceans and sea turtles (NMFS 1991, 2005; NMFS and USFWS 1991a, 1991b; NMFS and USFWS 1992), the marine mammal stock assessment reports (e.g., Waring et al. 1995---2011), and other publications (e.g., Clapham et al. 1999, Perry et al. 1999, Best et al. 2001, Perrin et al. 2002).

#### 6.3.2.1 Sea Turtles

Loggerhead, leatherback, Kemp's ridley, and green sea turtles occur seasonally in southern New England and Mid-Atlantic continental shelf waters north of Cape Hatteras, North Carolina. Turtles generally move up the coast from southern wintering areas as water temperatures warm in the spring (James et al. 2005, Morreale and Standora 2005, Braun-McNeill and Epperly 2004, Morreale and Standora 1998, Musick and Limpus 1997, Shoop and Kenney 1992, Keinath et al. 1987). A reversal of this trend occurs in the fall when water temperatures cool. Turtles pass Cape Hatteras by December and return to more southern waters for the winter (James et al. 2005, Morreale and Standora 2005, Braun-McNeill and Epperly 2004, Morreale and Standora 1998, Musick and Limpus 1997, Shoop and Kenney 1992, Keinath et al. 1987). Hard-shelled species typically occur as far north as Cape Cod whereas the more cold-tolerant leatherbacks occur in more northern Gulf of Maine waters in the summer and fall (Shoop and Kenney 1992, STSSN database http://www.sefsc.noaa.gov/seaturtleSTSSN.jsp).

On March 16, 2010, NMFS and USFWS published a proposed rule (75 FR 12598) to divide the worldwide population of loggerhead sea turtles into nine DPSs, as described in the

2009 Status Review. Two of the DPSs were proposed to be listed as threatened and seven of the DPSs, including the Northwest Atlantic Ocean DPS, were proposed to be listed as endangered. NMFS and the USFWS accepted comments on the proposed rule through September 13, 2010 (June 2, 2010, 75 FR 30769). On March 22, 2011 (76 FR 15932), NMFS and USFWS extended the date by which a final determination on the listing action will be made to no later than September 16, 2011. This action was taken to address the interpretation of the existing data on status and trends and its relevance to the assessment of risk of extinction for the Northwest Atlantic Ocean DPS, as well as the magnitude and immediacy of the fisheries bycatch threat and measures to reduce this threat. New information or analyses to help clarify these issues were requested by April 11, 2011.

On September 22, 2011, NMFS and USFWS issued a final rule (76 FR 58868), determining that the loggerhead sea turtle is composed of nine DPSs (as defined in Conant et al., 2009) that constitute species that may be listed as threatened or endangered under the ESA. Five DPSs were listed as endangered (North Pacific Ocean, South Pacific Ocean, North Indian Ocean, Northeast Atlantic Ocean, and Mediterranean Sea), and four DPSs were listed as threatened (Northwest Atlantic Ocean, South Atlantic Ocean, Southeast Indo-Pacific Ocean, and Southwest Indian Ocean). Note that the Northwest Atlantic Ocean (NWA) DPS and the Southeast Indo-Pacific Ocean DPS were original proposed as endangered. The NWA DPS was determined to be threatened based on review of nesting data available after the proposed rule was published, information provided in public comments on the proposed rule, and further discussions within the agencies. The two primary factors considered were population abundance and population trend. NMFS and USFWS found that an endangered status for the NWA DPS was not warranted given the large size of the nesting population, the overall nesting population remains widespread, the trend for the nesting population appears to be stabilizing, and substantial conservation efforts are underway to address threats.

The September 2011 final rule also noted that critical habitat for the two DPSs occurring within the U.S. (NWA DPS and North Pacific DPS) will be designated in a future rulemaking. Information from the public related to the identification of critical habitat, essential physical or biological features for this species, and other relevant impacts of a critical habitat designation was solicited.

This proposed action only occurs in the Atlantic Ocean. As noted in Conant et al. (2009), the range of the four DPSs occurring in the Atlantic Ocean are as follows: NWA DPS – north of the equator, south of 60° N latitude, and west of 40° W longitude; Northeast Atlantic Ocean (NEA) DPS – north of the equator, south of 60° N latitude, east of 40° W longitude, and west of 5° 36’ W longitude; South Atlantic DPS – south of the equator, north of 60° S latitude, west of 20° E longitude, and east of 60° W longitude; Mediterranean DPS – the Mediterranean Sea east of 5° 36’ W longitude. These boundaries were determined based on oceanographic features, loggerhead sightings, thermal tolerance, fishery bycatch data, and information on loggerhead distribution from satellite telemetry and flipper tagging studies. Sea turtles from the NEA DPS are not expected to be present over the North American continental shelf in U.S. coastal waters, where the proposed action occurs (P. Dutton, NMFS, personal communication, 2011). Previous literature (Bowen et al. 2004) has suggested that there is the potential, albeit small, for some juveniles from the Mediterranean DPS to be present in U.S. Atlantic coastal foraging grounds. These data should be interpreted with caution however, as they may be representing a shared common haplotype and lack of representative sampling at Eastern Atlantic rookeries. Given that updated, more refined analyses are ongoing and the occurrence of Mediterranean DPS juveniles in U.S. coastal waters is rare and uncertain, if even occurring at all, for the purposes of this assessment we are making the determination that the Mediterranean DPS is not likely to be present in the action area. Sea turtles of the South Atlantic DPS do not inhabit the action area of

this subject fishery (Conant et al. 2009). As such, the remainder of this assessment will only focus on the NWA DPS of loggerhead sea turtles, listed as threatened.

In general, sea turtles are a long-lived species and reach sexual maturity relatively late (NMFS SEFSC 2001; NMFS and USFWS 2007a, 2007b, 2007c, 2007d). Sea turtles are injured and killed by numerous human activities (NRC 1990; NMFS and USFWS 2007a, 2007b, 2007c, 2007d). Nest count data are a valuable source of information for each turtle species since the number of nests laid reflects the reproductive output of the nesting group each year. A decline in the annual nest counts has been measured or suggested for four of five western Atlantic loggerhead nesting groups through 2004 (NMFS and USFWS 2007a), however, data collected since 2004 suggests nest counts have stabilized or increased (TEWG 2009). Nest counts for Kemp's ridley sea turtles as well as leatherback and green sea turtles in the Atlantic demonstrate increased nesting by these species (NMFS and USFWS 2007b, 2007c, 2007d).

#### 6.3.2.2 Large Cetaceans

The most recent Marine Mammal Stock Assessment Report (SAR) (Waring et al. 2010) reviewed the current population trend for each of these cetacean species within U.S. Economic Exclusion Zone (EEZ) waters. The SAR also estimated annual human-caused mortality and serious injury. Finally, it described the commercial fisheries that interact with each stock in the U.S. Atlantic. The following paragraphs summarize information from the SAR.

The western North Atlantic baleen whale species (North Atlantic right, humpback, fin, sei, and minke whales) follow a general annual pattern of migration. They migrate from high latitude summer foraging grounds, including the Gulf of Maine and Georges Bank, to and latitude winter calving grounds (Perry et al. 1999, Kenney 2002). However, this is a simplification of species movements as the complete winter distribution of most species is unclear (Perry et al. 1999, Waring et al. 2011). Studies of some of the large baleen whales (right, humpback, and fin) have demonstrated the presence of each species in higher latitude waters even in the winter (Swingle et al. 1993, Wiley et al. 1995, Perry et al. 1999, Brown et al. 2002). Blue whales are most often sighted along the east coast of Canada, particularly in the Gulf of St. Lawrence. They occur only infrequently within the U.S. EEZ (Waring et al. 2002).

Available information suggests that the North Atlantic right whale population increased at a rate of 1.8 percent per year between 1990 and 2005. The total number of North Atlantic right whales is estimated to be at least 361 animals in 2005 (Waring et al. 2011). The minimum rate of annual human-caused mortality and serious injury to right whales averaged 2.8 mortality or serious injury incidents per year during 2004 to 2008 (Waring et al. 2011). Of these, fishery interactions resulted in an average of 0.8 mortality or serious injury incidents per year.

The North Atlantic population of humpback whales is conservatively estimated to be 7,698 (Waring et al. 2011). The best estimate for the GOM stock of humpback whale population is 847 whales (Waring et al. 2011). Based on data available for selected areas and time periods, the minimum population estimates for other western North Atlantic whale stocks are 3,269 fin whales, 208 sei whales (Nova Scotia stock), 3,539 sperm whales, and 6,909 minke whales (Waring et al. 2009). Current data suggest that the GOM humpback whale stock is steadily increasing in size (Waring 2011). Insufficient information exist to determine trends for these other large whale species.

Recent revisions to the Atlantic Large Whale Take Reduction Plan (ALWTRP) (72 FR 57104, October 5, 2007) continue to address entanglement risk of large whales (right, humpback, and fin whales, and acknowledge benefits to minke whales) in commercial fishing gear. The revisions seek to reduce the risk of death and serious injury from entanglements that do occur.

#### 6.3.2.3 Small Cetaceans

There is anthropogenic mortality of numerous small cetacean species (dolphins, pilot whales, and harbor porpoise) in Northeast multispecies fishing gear. Seasonal abundance and distribution of each species off the coast of the Northeast U.S. varies with respect to life history characteristics. Some species such as white-sided dolphin and harbor porpoise primarily occupy continental shelf waters. Other species such as the Risso's dolphin occur primarily in continental shelf edge and slope waters. Still other species like the common dolphin and the spotted dolphin occupy all three habitats. Waring et al. (2009) summarizes information on the western North Atlantic stocks of each species.

#### 6.3.2.4 Pinnipeds

Harbor seals have the most extensive distribution of the four species of seal expected to occur in the area. Harbor seals sighting have occurred far south as 30° N (Katona et al. 1993, Waring et al. 2009). Gray seals are the second most common seal species in U.S. EEZ waters. They occur primarily in waters off of New England (Katona et al. 1993; Waring et al. 2009). Pupping for both species occurs in both U.S. and Canadian waters of the western North Atlantic. Although there are at least three gray seal pupping colonies in U.S., the majority of harbor seal pupping likely occurs in U.S. waters and the majority of gray seal pupping likely occurs in Canadian waters. Observations of harp and hooded seals are less common in U.S. EEZ waters. Both species form aggregations for pupping and breeding off eastern Canada in the late winter/early spring. They then travel to more northern latitudes for molting and summer feeding (Waring et al. 2006). Both species have a seasonal presence in U.S. waters from Maine to New Jersey, based on sightings, stranding, and fishery bycatch information (Waring et al. 2009).

#### 6.3.2.5 Atlantic Sturgeon

Atlantic sturgeon is an anadromous species that spawns in relatively low salinity, river environments, but spends most of its life in the marine and estuarine environments from Labrador, Canada to the Saint Johns River, Florida (Holland and Yelverton 1973, Dovel and Berggen 1983, Waldman et al. 1996, Kynard and Horgan 2002, Dadswell 2006, ASSRT 2007). Tracking and tagging studies have shown that subadult and adult Atlantic sturgeon that originate from different rivers mix within the marine environment, utilizing ocean and estuarine waters for life functions such as foraging and overwintering (Stein et al. 2004a, Dadswell 2006, ASSRT 2007, Laney et al. 2007, Dunton et al. 2010). Fishery-dependent data as well as fishery-independent data demonstrate that Atlantic sturgeon use relatively shallow inshore areas of the continental shelf; primarily waters less than 50 m (Stein et al. 2004b, ASMFC 2007, Dunton et al. 2010). The data also suggest regional differences in Atlantic sturgeon depth distribution with sturgeon observed in waters primarily less than 20 m in the Mid-Atlantic Bight and in deeper waters in the Gulf of Maine (Stein et al. 2004b, ASMFC 2007, Dunton et al. 2010). Information on population sizes for each Atlantic sturgeon DPS is very limited. Based on the best available information, NMFS has concluded that bycatch, vessel strikes, water quality and water availability, dams, lack of regulatory mechanisms for protecting the fish, and dredging are the most significant threats to Atlantic sturgeon.

Comprehensive information on current abundance of Atlantic sturgeon is lacking for all of the spawning rivers (ASSRT 2007). Based on data through 1998, an estimate of 863 spawning adults per year was developed for the Hudson River (Kahnle et al. 2007), and an estimate of 343 spawning adults per year is available for the Altamaha River, GA, based on data

collected in 2004-2005 (Schueller and Peterson 2006). Data collected from the Hudson River and Altamaha River studies cannot be used to estimate the total number of adults in either subpopulation, since mature Atlantic sturgeon may not spawn every year, and it is unclear to what extent mature fish in a non-spawning condition occur on the spawning grounds. Nevertheless, since the Hudson and Altamaha Rivers are presumed to have the healthiest Atlantic sturgeon subpopulations within the United States, other U.S. subpopulations are predicted to have fewer spawning adults than either the Hudson or the Altamaha (ASSRT 2007). It is also important to note that the estimates above represent only a fraction of the total population size as spawning adults comprise only a portion of the total population (e.g., this estimate does not include subadults and early life stages).

#### 6.3.2.6 Species Not Likely to be Affected

NMFS has determined that the action being considered in this EA is not likely to adversely affect shortnose sturgeon, the Gulf of Maine distinct population segment (DPS) of Atlantic salmon, hawksbill sea turtles, blue whales, or sperm whales, all of which are listed as endangered species under the ESA. Further, the action considered in this EA is not likely to adversely affect North Atlantic right whale (discussed in Section 4.4.2.2) critical habitat. The following discussion provides the rationale for these determinations.

Shortnose sturgeon are benthic fish that mainly occupy the deep channel sections of large rivers. They occupy rivers along the western Atlantic coast from St. Johns River in Florida, to the Saint John River in New Brunswick, Canada. Although, the species is possibly extirpated from the Saint Johns River system. The species is anadromous in the southern portion of its range (i.e., south of Chesapeake Bay), while some northern populations are amphidromous (NMFS 1998). Since sectors would not operate in or near the rivers where concentrations of shortnose sturgeon are most likely found, it is highly unlikely that sectors would affect shortnose sturgeon.

The wild populations of Atlantic salmon are listed as endangered under the ESA. Their freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River. Juvenile salmon in New England rivers typically migrate to sea in spring after a one- to three-year period of development in freshwater streams. They remain at sea for two winters before returning to their U.S. natal rivers to spawn (Kocik and Sheehan 2006). Results from a 2001-2003 post-smolt trawl survey in the nearshore waters of the Gulf of Maine indicate that Atlantic salmon post-smolts are prevalent in the upper water column throughout this area in mid to late May (Lacroix, Knox, and Stokesbury 2005). Therefore, commercial fisheries deploying small-mesh active gear (pelagic trawls and purse seines within 10 m of the surface) in nearshore waters of the Gulf of Maine may have the potential to incidentally take smolts. However, it is highly unlikely that the action being considered will affect the Gulf of Maine DPS of Atlantic salmon given that operation of the multispecies fishery does not occur in or near the rivers where concentrations of Atlantic salmon are likely to be found. Additionally, multispecies gear operates in the ocean at or near the bottom rather than near the surface where Atlantic salmon are likely to occur. Thus, this species will not be considered further in this EA.

North Atlantic right whales occur in coastal and shelf waters in the western North Atlantic (NMFS 2005). Section 4.4.2.2 discusses potential fishery entanglement and mortality interactions with North Atlantic right whale individuals. The western North Atlantic population in the U.S. primarily ranges from winter calving and nursery areas in coastal waters off the southeastern U.S. to summer feeding grounds in New England waters (NMFS 2005). North Atlantic Right Whales use five well-known habitats annually, including multiple in northern

waters. These northern areas include the Great South Channel (east of Cape Cod); Cape Cod and Massachusetts Bays; the Bay of Fundy; and Browns and Baccaro Banks, south of Nova Scotia. NMFS designated the Great South Channel and Cape Cod and Massachusetts Bays as Northern Atlantic right whale critical habitat in June 1994 (59 FR 28793). NMFS has designated additional critical habitat in the southeastern U.S. Multispecies gear operates in the ocean at or near the bottom rather than near the surface. It is not known whether the bottom-trawl, or any other type of fishing gear, has an impact on the habitat of the Northern right whale (59 FR 28793). As discussed in the FY 2010 and FY 2011 sector EAs and further in Section 5.0, sectors would result in a negligible effect on physical habitat. Therefore, FY 2012 sector operations would not result in a significant impact on Northern right whale critical habitat. Further, mesh sizes used in the multispecies fishery do not significantly impact the Northern right whale's planktonic food supply (59 FR 28793). Therefore, Northern right whale food sources in areas designated as critical habitat would not be adversely affected by sectors. For these reasons, Northern right whale critical habitat will not be considered further in this EA.

The hawksbill turtle is uncommon in the waters of the continental U.S. Hawksbills prefer coral reefs, such as those found in the Caribbean and Central America. Hawksbills feed primarily on a wide variety of sponges, but also consume bryozoans, coelenterates, and mollusks. The Culebra Archipelago of Puerto Rico contains especially important foraging habitat for hawksbills. Nesting areas in the western North Atlantic include Puerto Rico and the Virgin Islands. There are accounts of hawksbills in south Florida and individuals have been sighted along the east coast as far north as Massachusetts; however, east coast sightings north of Florida are rare (NMFS 2009a). Operations in the NE multispecies fishery would not occur in waters that are typically used by hawksbill sea turtles. Therefore, it is highly unlikely that fishery operations would affect this turtle species.

Blue whales do not regularly occur in waters of the U.S. EEZ (Waring et al. 2002). In the North Atlantic region, blue whales are most frequently sighted from April to January (Sears 2002). No blue whales were observed during the Cetacean and Turtle Assessment Program surveys of the mid- and North Atlantic areas of the outer continental shelf (Cetacean and Turtle Assessment Program 1982). Calving for the species occurs in low latitude waters outside of the area where the sectors would operate. Blue whales feed on euphausiids (krill) that are too small to be captured in fishing gear. There were no observed fishery-related mortalities or serious injuries to blue whales between 1996 and 2000 (Waring et al. 2002). The species is unlikely to occur in areas where the sectors would operate, and sector operations would not affect the availability of blue whale prey or areas where calving and nursing of young occurs. Therefore, the Proposed Action would not be likely to adversely affect blue whales.

Unlike blue whales, sperm whales do regularly occur in waters of the U.S. EEZ. However, the distribution of the sperm whales in the U.S. EEZ occurs on the continental shelf edge, over the continental slope, and into mid-ocean regions (Waring et al. 2007). Sperm whale distribution is typically concentrated east-northeast of Cape Hatteras in winter and shifts northward in spring when whales are found throughout the MA Bight (Waring et al. 2006). Distribution extends further northward to areas north of GB and the Northeast Channel region in summer and then south of New England in fall, back to the MA Bight (Waring et al. 1999). In contrast, the sectors would operate in continental shelf waters. The average depth over which sperm whale sightings occurred during the Cetacean and Turtle Assessment Program surveys was 5,879 ft (1,792 m) (Cetacean and Turtle Assessment Program 1982). Female sperm whales and young males almost always inhabit open ocean, deep water habitat with bottom depths greater than 3,280 ft (1,000 m) and at latitudes less than 40° N (Whitehead 2002). Sperm whales feed on large squid and fish that inhabit the deeper ocean regions (Perrin et al. 2002). There were no observed fishery-related mortalities or serious injuries to sperm whales between 2001

and 2005 (Waring et al. 2007). Sperm whales are unlikely to occur in water depths where the sectors would operate, sector operations would not affect the availability of sperm whale prey or areas where calving and nursing of young occurs. Therefore, the Proposed Action would not be likely to adversely affect sperm whales.

Although marine turtles and large whales could be potentially affected through interactions with fishing gear, NMFS has determined that the continued authorization of the multispecies fishery, and therefore the FY 2011 sectors, would not have any adverse effects on the availability of prey for these species. Sea turtles feed on a variety of plants and animals, depending on the species. However, none of the turtle species are known to feed upon groundfish. Right whales and sei whales feed on copepods (Horwood 2002, Kenney 2002). The multispecies fishery will not affect the availability of copepods for foraging right and sei whales because copepods are very small organisms that will pass through multispecies fishing gear rather than being captured in it. Humpback whales and fin whales also feed on krill as well as small schooling fish such as sand lance, herring and mackerel (Aguilar 2002, Clapham 2002). Multispecies fishing gear operates on or very near the bottom. Fish species caught in multispecies gear are species that live in benthic habitat (on or very near the bottom) such as flounders. As a result, this gear does not typically catch schooling fish such as herring and mackerel that occur within the water column. Therefore, the continued authorization of the spiny dogfish fishery or the approval of the FY 2012 Spiny Dogfish FMP specifications will not affect the availability of prey for foraging humpback or fin whales.

### 6.3.3 Interactions Between Gear and Protected Resources

NMFS categorizes commercial fisheries based on a two-tiered, stock-specific fishery classification system that addresses both the total impact of all fisheries on each marine mammal stock as well as the impact of individual fisheries on each marine mammal stock. NMFS bases the system on the numbers of animals per year that incur incidental mortality or serious injury due to commercial fishing operations relative to a marine mammal stock's Potential Biological Removal (PBR) level.[3] Tier 1 takes into account the cumulative mortality and serious injury to marine mammals caused by commercial fisheries. Tier 2 considers marine mammal mortality and serious injury caused by the individual fisheries. This EA uses Tier 2 classifications to indicate how each type of gear proposed for use in the Proposed Action may affect marine mammals (NMFS 2009b). Box 6.3.3.1 identifies the classifications used in the final List of Fisheries (for FY 2010 (75 FR 68468; November 8, 2010; NMFS 2010b), which are broken down into Tier 2 Categories I, II, and III. A proposed List of Fisheries for FY 2012 was published on June 28, 2011 (76 FR 37716), but the List of Fisheries for FY 2012 has not yet been adopted and is not discussed further in this document.

[3] PBR is the maximum number of animals, not including natural mortalities, which may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population.

**Box 6.3.3.1 Descriptions of the Tier 2 Fishery Classification Categories**

| Category | Category Description |
|---|---|
| Category I | A commercial fishery that has frequent incidental mortality and serious injury of marine mammals. This classification indicates that a commercial fishery is, by itself, responsible for the annual removal of 50 percent or more of any stock's PBR level. |
| Category II | A commercial fishery that has occasional incidental mortality and serious injury of marine mammals. This classification indicates that a commercial fishery is one that, collectively with other fisheries, is responsible for the annual removal of more than 10 percent of any marine mammal stock's PBR level and that is by itself responsible for the annual removal of between 1 percent and 50 percent, exclusive of any stock's PBR. |
| Category III | A commercial fishery that has a remote likelihood of, or no known incidental mortality and serious injury of marine mammals. This classification indicates that a commercial fishery is one that collectively with other fisheries is responsible for the annual removal of:<br>a. Less than 50 percent of any marine mammal stock's PBR level, or<br>b. More than 1 percent of any marine mammal stock's PBR level, yet that fishery by itself is responsible for the annual removal of 1 percent or less of that stock's PBR level. In the absence of reliable information indicating the frequency of incidental mortality and serious injury of marine mammals by a commercial fishery, the Assistant Administrator would determine whether the incidental serious injury or mortality is "remote" by evaluating other factors such as fishing techniques, gear used, methods used to deter marine mammals, target species, seasons and areas fished, qualitative data from logbooks or fisher reports, stranding data, and the species and distribution of marine mammals in the area or at the discretion of the Assistant Administrator. |

Interactions between gear and a given species occur when fishing gear overlaps both spatially and trophically with the species' niche. Spatial interactions are more "passive" and involve inadvertent interactions with fishing gear when the fishermen deploy gear in areas used by protected resources. Trophic interactions are more "active" and occur when protected species attempt to consume prey caught in fishing gear and become entangled in the process. Spatial and trophic interactions can occur with various types of fishing gear used by the multispecies fishery through the year. Many large and small cetaceans and sea turtles are more prevalent within the operations area during the spring and summer. However they are also relatively abundant during the fall and would have a higher potential for interaction with sector activities that occur during these seasons. Although harbor seals may be more likely to occur in the operations area between fall and spring, harbor and gray seals are year-round residents. Therefore, interactions could occur year-round. The uncommon occurrences of hooded and harp seals in the operations area are more likely to occur during the winter and spring, allowing for an increased potential for interactions during these seasons.

Although interactions between protected species and gear deployed by the Northeast multispecies fishery would vary, interactions generally include:

- Becoming caught on hooks (bottom longlines)
- Entanglement in mesh (gillnets and trawls)
- Entanglement in the float line (gillnets and trawls)
- Entanglement in the groundline (gillnets, trawls, and bottom longlines)
- Entanglement in anchor lines (gillnets and bottom longlines), or
- Entanglement in the vertical lines that connect gear to the surface and surface systems (gillnets, traps/pots, and bottom longlines).

NMFS assumes the potential for entanglements to occur is higher in areas where more gear is set and in areas with higher concentrations of protected species.

Table 9 lists the marine mammals known to have had interactions with gear used by the Northeast multispecies fishery. This gear includes sink gillnets, traps/pots, bottom trawls, and bottom longlines within the Northeast multispecies region, as excerpted from the List of Fisheries for FY 2011 ([75 FR 68468; November 8, 2010], also see Waring et al. 2009). Sink gillnets have the greatest potential for interaction with protected resources, followed by bottom trawls. There are no observed reports of interactions between longline gear and marine mammals in FY 2009 and FY 2010. However, interactions between the pelagic longline fishery and both pilot whales and Risso's dolphins led to the development of the Pelagic Longline Take Reduction Plan.

Table 9. Marine Mammals Impacts Based on Groundfishing Gear and Northeast Multispecies Fishing Areas (Based on 2010 List of Fisheries)

| Fishery | | Estimated Number of Vessels/Persons | Marine Mammal Species and Stocks Incidentally Killed or Injured |
|---|---|---|---|
| **Category** | **Type** | | |
| Category I | MA gillnet | 5,495 | Bottlenose dolphin, Northern Migratory coastal [a]<br>Bottlenose dolphin, Southern Migratory coastal [a]<br>Bottlenose dolphin, Northern NC estuarine system [a]<br>Bottlenose dolphin, Southern NC estuarine system [a]<br>Bottlenose dolphin, WNA offshore<br>Common dolphin, WNA<br>Gray seal, WNA<br>Harbor porpoise, GOM/Bay of Fundy<br>Harbor seal, WNA<br>Harp seal, WNA<br>Humpback whale, Gulf of Maine<br>Long-finned pilot whale, WNA<br>Minke whale, Canadian east coast<br>Risso's dolphin, WNA<br>Short-finned pilot whale, WNA<br>White-sided dolphin, WNA |
| | Northeast sink gillnet | 7,712 | Bottlenose dolphin, WNA, offshore<br>Common dolphin, WNA<br>Fin whale, WNA<br>Gray seal, WNA<br>Harbor porpoise, GOM/Bay of Fundy<br>Harbor seal, WNA<br>Harp seal, WNA<br>Hooded seal, WNA<br>Humpback whale, GOM<br>Minke whale, Canadian east coast<br>North Atlantic right whale, WNA<br>Risso's dolphin, WNA<br>White-sided dolphin, WNA |
| **Fishery** | | **Estimated Number of Vessels/Persons** | **Marine Mammal Species and Stocks Incidentally Killed or Injured** |
| **Category** | **Type** | | |
| Category II | MA bottom trawl | 1,182 | Bottlenose dolphin, WNA offshore<br>Common dolphin, WNA [a]<br>Long-finned pilot whale, WNA [a]<br>Short-finned pilot whale, WNA [a]<br>White-sided dolphin, WNA |
| | Northeast bottom trawl | 1,635 | Common dolphin, WNA<br>Harbor porpoise, GOM/ Bay of Fundy<br>Harbor seal, WNA<br>Harp seal, WNA<br>Long-finned pilot whale, WNA<br>Short-finned pilot whale, WNA<br>White-sided dolphin, WNA [a] |
| | Atlantic mixed species trap/pot [c] | 1,912 | Fin whale, WNA<br>Humpback whale, GOM |
| Category III | Northeast/MA bottom longline/hook-and-line | 1,183 | None documented in recent years |

Notes:

[a] Fishery classified based on serious injuries and mortalities of this stock, which are greater than 50 percent (Category I) or greater than 1 percent and less than 50 percent (Category II) of the stock's PBR.

[b] Although not included in the 2010 List of Fisheries, Waring et al. (2009) indicates that nine gray seal mortalities in 2007 were attributed to incidental capture in the northeast bottom trawl.

[c] This fishery is classified by analogy.

Marine mammals are taken in gillnets, trawls, and trap/pot gear used in the Northeast multispecies area. Documented protected species interactions in Northeast sink gillnet fisheries include harbor porpoise, white-sided dolphin, harbor seal, gray seal, harp seal, hooded seal, long-finned pilot whale, offshore bottlenose dolphin, Risso's dolphin, and common dolphin. Not mentioned here are possible interactions with sea turtles and sea birds. Multispecies fishing vessels would be required to adhere to measures in the Atlantic Large Whale Take Reduction Plan (ALWTRP) to minimize potential impacts to certain cetaceans. ALWTRP was developed to address entanglement risk to right, humpback, and fin whales, and to acknowledge benefits to minke whales in specific Category I or II commercial fishing efforts that utilize traps/pots and gillnets. The ALWTRP calls for the use of gear markings, area restrictions, weak links, and sinking groundline. Fishing vessels would be required to comply with the ALWTRP in all areas where gillnets were used. Fishing vessels would also need to comply with the Bottlenose Dolphin Take Reduction Plan and Harbor Porpoise Take Reduction Plan (HPTRP) within the Northeast multispecies area. The Bottlenose Dolphin Take Reduction Plan restricts night time use of gillnets in the MA gillnet region. The HPTRP aims to reduce interactions between the harbor porpoise and gillnets in the Gulf of Maine. The HPTRP implements seasonal area closures and the seasonal use of pingers (acoustic devices that emit a sound) to deter harbor porpoises from approaching the nets.

Data from sector trips in FY 2010 and FY 2009 indicate no overall significant increase in take of protected resources or sea turtles. There may be a decrease in annual take in sink gillnet gear, and the data suggest an overall decrease in the winter take, and in the fall for turtles. However, this decrease in take corresponds well to the decrease in ACL. Within individual stat areas there does appear to be some trends in take of protected resources (includes all species).

Sea turtles have been caught and injured or killed in multiple types of fishing gear, including gillnets, trawls, and hook and line gear. However, impact due to inadvertent interaction with trawl gear is almost twice as likely to occur when compared with other gear types (NMFS 2009c). Interaction with trawl gear is more detrimental to sea turtles as they can be caught within the trawl itself and will drown after extended periods underwater. A study conducted in the MA region showed that bottom trawling accounts for an average annual take of 616 loggerhead sea turtles, although Kemp's ridleys and leatherbacks were also caught during the study period (Murray 2006). Sea turtles generally occur in more temperate waters than those in the Northeast multispecies area. Gillnets are considered more detrimental to marine mammals such as pilot whales, dolphins, porpoises, and seals, as well as large marine whales; however, protection for marine mammals would be provided through various Take Reduction Plans outlined above.

Atlantic sturgeon are known to be captured in sink gillnet, drift gillnet, and otter trawl gear (Stein et al. 2004a, ASMFC TC 2007). Of these gear types, sink gillnet gear poses the greatest known risk of mortality for bycaught sturgeon (ASMFC TC 2007). Sturgeon deaths were rarely reported in the otter trawl observer dataset (ASMFC TC 2007). However, the level of mortality after release from the gear is unknown (Stein et al. 2004a). In a review of the Northeast Fishery Observer Program (NEFOP) database for the years 2001-2006, observed bycatch of Atlantic sturgeon was used to calculate bycatch rates that were then applied to commercial fishing effort to estimate overall bycatch of Atlantic sturgeon in commercial fisheries. This review indicated sturgeon bycatch occurred in statistical areas abutting the coast from Massachusetts (statistical area 514) to North Carolina (statistical area 635) (ASMFC TC 2007). Based on the available data, participants in an ASMFC bycatch workshop concluded that sturgeon encounters tended to occur in waters less than 50 m throughout the year, although seasonal patterns exist (ASMFC TC 2007). The ASMFC analysis determined that an average of 650 Atlantic sturgeon mortalities occurred per year (during the 2001 to 2006 timeframe) in sink

gillnet fisheries. Stein et al. (2004a), based on a review of the NMFS Observer Database from 1989-2000, found clinal variation in the bycatch rate of sturgeon in sink gillnet gear with lowest rates occurring off of Maine and highest rates off of North Carolina for all months of the year.

In an updated, preliminary analysis, the Northeast Fisheries Science Center (NEFSC) was able to use data from the NEFOP database to provide updated estimates for the 2006 to 2010 timeframe. Data were limited by observer coverage to waters outside the coastal boundary (fzone>0) and north of Cape Hatteras, NC. Sturgeon included in the data set were those identified by federal observers as Atlantic sturgeon, as well as those categorized as unknown sturgeon. At this time, data were limited to information collected by the NEFOP; limited data collected in the At-Sea Monitoring Program were not included, although preliminary views suggest the incidence of sturgeon encounters was low.

The preliminary analysis apportioned the estimated weight of all sturgeon takes to specific fishery management plans. The analysis estimates that between 2006 and 2010, a total of 15,587 lbs of Atlantic sturgeon were captured and discarded in bottom otter trawl (7,740 lbs) and sink gillnet (7,848 lbs) gear. The analysis results indicate that 7.1% (550 lbs) of the weight of sturgeon discards in bottom otter trawl gear could be attributed to the large mesh bottom trawl fisheries if a correlation of FMP species landings (by weight) was used as a proxy for fishing effort. Additionally, the analysis results indicate that 4.0% (314 lbs) of the weight of sturgeon discards in sink gillnet gear could be attributed to the large mesh gillnet fisheries if a correlation of FMP species landings (by weight) was used as a proxy for fishing effort.

These additional data support the conclusion from the earlier bycatch estimates that the spiny dogfish fishery may interact with Atlantic sturgeon. Since the Atlantic sturgeon DPSs have been listed as endangered and threatened under the ESA, the ESA Section 7 consultation for the spiny dogfish fishery will be reinitiated, and additional evaluation will be included in the resulting Biological Opinion to describe any impacts of the fisheries on Atlantic sturgeon and define any measures needed to mitigate those impacts, if necessary. It is anticipated that any measures, terms and conditions included in an updated Biological Opinion will further reduce impacts to the species. The Biological Opinion is expected to be completed prior to the 2012 spiny dogfish fishing year (May1).

## 6.4 Human Communities

A detailed description of historical fisheries for spiny dogfish is presented in Section 2.3 of the FMP. The information presented in this section is intended to briefly characterize recent fisheries trends.

### 6.4.2 Commercial Vessel and Dealer Activity

According to unpublished NMFS permit file data, 2,942 vessels were issued federal spiny dogfish permits in 2010, while 326 of these vessels contributed to overall landings. The distribution of permitted and active vessels by home port state is given in Table 10. Most of the active vessels were from Massachusetts (31.6%), New Jersey (14.7%), New Hampshire (11.3%), Rhode Island (9.8%), New York (8.0%), North Carolina (6.7%), and Virginia (5.8%). The remaining 39 vessels from all other states comprised 12.0% of the total.

**Table 10. Federally permitted dogfish vessel activity by home port state in FY2010. Active vessels are defined as vessels identified in the dealer reports as having landed spiny dogfish in FY2010.**

| State | Permitted Vessels | Pct of Total | State | Active Vessels | Pct of Total |
|---|---|---|---|---|---|
| MA | 1,087 | 36.95% | MA | 103 | 31.60% |
| NJ | 422 | 14.34% | NJ | 48 | 14.72% |
| ME | 341 | 11.59% | NH | 37 | 11.35% |
| NY | 292 | 9.93% | RI | 32 | 9.82% |
| RI | 194 | 6.59% | NY | 26 | 7.98% |
| NC | 160 | 5.44% | NC | 22 | 6.75% |
| NH | 142 | 4.83% | VA | 19 | 5.83% |
| VA | 138 | 4.69% | ME | 16 | 4.91% |
| CT | 50 | 1.70% | MD | 13 | 3.99% |
| MD | 47 | 1.60% | CT | 8 | 2.45% |
| DE | 29 | 0.99% | Other | 2 | 0.61% |
| PA | 18 | 0.61% | **Total** | **326** | **100.00%** |
| FL | 16 | 0.54% | | | |
| Other | 6 | 0.20% | | | |
| **Total** | **2,942** | **100.00%** | | | |

Source: NMFS permit data, Commercial Fisheries Database

NMFS permit data indicate that 495 dealers possessed federal spiny dogfish dealer permits in 2010 while dealer reports indicate 75 of those dealers actually bought spiny dogfish. The distribution of permitted and active dealers by state is given in Table 11. Most of the active dealers were from the states of Massachusetts (29.3%), New York (17.3%), North Carolina (14.7%), Rhode Island (13.3%), Virginia (7.8), New Jersey, (5.3%), New Hampshire (5.3%) with the remaining six dealers in other states comprising 8.0% of the total.

**Table 11. Federally permitted spiny dogfish dealers by state in FY2010. Active dealers are defined as dealers identified in the federal dealer reports as having bought spiny dogfish in FY2010.**

| State | Permitted Dealers | Pct of Total | State | Active Dealers | Pct of Total |
|---|---|---|---|---|---|
| MA | 134 | 27.07% | MA | 22 | 29.33% |
| NY | 97 | 19.60% | NY | 13 | 17.33% |
| NJ | 65 | 13.13% | NC | 11 | 14.67% |
| RI | 46 | 9.29% | RI | 10 | 13.33% |
| ME | 35 | 7.07% | VA | 5 | 6.67% |
| NC | 33 | 6.67% | NJ | 4 | 5.33% |
| VA | 32 | 6.46% | NH | 4 | 5.33% |
| MD | 18 | 3.64% | MD | 3 | 4.00% |
| NH | 14 | 2.83% | Other | 3 | 4.00% |
| CT | 5 | 1.01% | **Total** | **75** | **100.00%** |
| DE | 5 | 1.01% | | | |
| PA | 4 | 0.81% | | | |
| FL | 3 | 0.61% | | | |
| Other | 4 | 0.81% | | | |
| **Total** | **495** | **100.00%** | | | |

Source: NMFS permit data, Commercial Fisheries Database

*Landings by State*

Commercial harvest has historically been dominated by Massachusetts (Table 12). Starting in 2007, dogfish landings from Virginia were greater than or approximately equivalent to those of Massachusetts. State-by-state landings since 2007 are influenced by the regional allocation of commercial quota through the ASMFC's Interstate FMP. Currently, that FMP allocates 58% of the annual quota to a northern region (Maine –Connecticut), and the remaining 42% among states from New York – North Carolina (NY 2.707%; NJ 7.644%; DE 0.896%; MD 5.920%; VA 10.795%, NC 14.036%).

In fishing year 2010, Massachusetts accounted for 44.3% of coastwide landings (Table 12). North Carolina (13.0%), Virginia (11.9%), New Hampshire (8.4%), and New Jersey (8.3%) were also important landings states. No other states contributed more than 5% of annual landings.

**Table 12. Commercial landings (1,000s lb) of spiny dogfish by state from fishing years 1989 through 2009.**

| Year | ME | NH | MA | RI | CT | NY | NJ | DE | MD | VA | NC | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1989 | 4,962 | 0 | 5,100 | 47 | 24 | 13 | 1,434 | 0 | 714 | 18 | 0 | 9,903 |
| 1990 | 6,251 | 185 | 20,304 | 2,968 | 9 | 44 | 4,754 | 0 | 5,150 | 62 | 41 | 32,475 |
| 1991 | 2,059 | 0 | 13,523 | 1,901 | 22 | 74 | 2,382 | 6 | 3,338 | 165 | 1,463 | 29,049 |
| 1992 | 1,818 | 405 | 17,457 | 2,116 | 9 | 140 | 1,493 | 0 | 1,877 | 220 | 8,635 | 37,165 |
| 1993 | 3,408 | 1,639 | 26,189 | 1,554 | 170 | 100 | 707 | 0 | 1,893 | 379 | 8,806 | 45,509 |
| 1994 | 1,788 | 2,610 | 23,181 | 603 | 85 | 475 | 1,422 | 63 | 2,233 | 665 | 6,929 | 41,447 |
| 1995 | 1,683 | 2,094 | 28,789 | 414 | 408 | 815 | 2,581 | 0 | 7,752 | 1,065 | 9,525 | 50,068 |
| 1996 | 904 | 1,135 | 27,208 | 1,518 | 619 | 1,381 | 5,833 | 0 | 4,820 | 4,832 | 10,304 | 60,055 |
| 1997 | 437 | 999 | 21,417 | 682 | 282 | 312 | 3,831 | 0 | 2,105 | 3,945 | 5,924 | 40,460 |
| 1998 | 288 | 1,935 | 24,866 | 1,906 | 241 | 1,704 | 7,091 | 2 | 2,199 | 5,004 | 3,928 | 45,476 |
| 1999 | 28 | 1,233 | 14,824 | 1,237 | 87 | 2,868 | 6,586 | 0 | 808 | 1,750 | 3,601 | 32,760 |
| 2000 | 1 | 2,279 | 5,545 | 130 | 12 | 145 | 5 | 0 | 0 | 72 | 12 | 20,407 |
| 2001 | 0 | 529 | 3,912 | 395 | 7 | 62 | 17 | 0 | 0 | 178 | 0 | 5,056 |
| 2002 | 1 | 349 | 3,800 | 455 | 6 | 49 | 1 | 0 | 2 | 114 | 0 | 4,839 |
| 2003 | 0 | 175 | 2,006 | 141 | 2 | 41 | 0 | 0 | 5 | 451 | 520 | 2,579 |
| 2004 | 3 | 0 | 1,094 | 129 | 60 | 42 | 7 | 0 | 1 | 39 | 20 | 2,160 |
| 2005 | 31 | 162 | 1,826 | 173 | 93 | 44 | 1 | 0 | 11 | 66 | 10 | 2,535 |
| 2006 | 180 | 633 | 2,744 | 518 | 62 | 11 | 3 | 0 | 16 | 2,286 | 144 | 5,212 |
| 2007 | 99 | 185 | 2,796 | 523 | 23 | 21 | 10 | 0 | 25 | 2,575 | 167 | 7,723 |
| 2008 | 49 | 1,370 | 3,559 | 239 | 10 | 23 | 50 | 0 | 114 | 2,479 | 1,416 | 9,057 |
| 2009 | 594 | 1,885 | 3,881 | 940 | 92 | 192 | 1,342 | 14 | 175 | 1,487 | 1,708 | 11,752 |
| 2010 | 229 | 1,214 | 6,442 | 708 | 107 | 468 | 1,208 | 8 | 542 | 1,731 | 1,887 | 14,543 |

Source: NMFS Commercial Fisheries Database.

*Landings by Month*

Under the federal FMP, the annual commercial quota is allocated seasonally to two half-year periods. Period 1 (May 1 – Oct 31) is allocated 57.9% of the quota and Period 2 is allocated 42.1% of the quota. This allocation scheme was implemented as part of the rebuilding plan in order to match seasonal availability of the resource with the historic landings patterns by communities over the fishing year. Spiny dogfish migratory behavior makes them available to the northern end of the fishery (i.e., MA) during Period 1 and the southern end of the fishery (i.e., (VA and NC) during Period 2.

In fishing year 2010, spiny dogfish were landed in all months with peak landings occurring in June-August of Period 1 and Nov – Jan of Period 2 (Table 13).

**Table 13. Spiny dogfish landings (lb) by month in FY2010.**

| | Month | Landings(lb) | Pct of Total |
|---|---|---|---|
| Period 1 | May | 204,979 | 1.41% |
| | Jun | 1,700,034 | 11.69% |
| | Jul | 3,891,882 | 26.76% |
| | Aug | 3,025,937 | 20.81% |
| | Sep | 492 | 0.00% |
| | Oct | 8,955 | 0.06% |
| | **Total** | 8,832,279 | 60.73% |
| Period 2 | Nov | 1,185,693 | 8.15% |
| | Dec | 1,124,308 | 7.73% |
| | Jan | 2,312,203 | 15.90% |
| | Feb | 388,917 | 2.67% |
| | Mar | 699,245 | 4.81% |
| | Apr | 370 | 0.00% |
| | **Total** | 5,710,736 | 39.27% |
| | **Grand Total** | 14,543,015 | 100.00% |

Source: NMFS Commercial Fisheries Database

### 6.4.2 Commercial Fishery Value

Unpublished NMFS dealer reports indicate that the total ex-vessel value of commercially landed spiny dogfish in calendar year 2010 was about $2.674 million, and in fishing year 2010 was about $3.119 million. The approximate price/lb of spiny dogfish was $0.22 and $0.21 in those timeframes, respectively (Table 14).

**Table 14. Ex-vessel value and price per pound of commercially landed spiny dogfish, Maine - North Carolina combined, 2000-2010.**

| Calendar Year | Value ($1,000) | Price ($/lb) | Fishing Year | Value ($1,000) | Price ($/lb) |
|---|---|---|---|---|---|
| 2000 | 4,342 | 0.21 | 2000 | 1,989 | 0.24 |
| 2001 | 1,137 | 0.22 | 2001 | 1,147 | 0.23 |
| 2002 | 989 | 0.20 | 2002 | 970 | 0.20 |
| 2003 | 364 | 0.14 | 2003 | 415 | 0.12 |
| 2004 | 311 | 0.14 | 2004 | 260 | 0.17 |
| 2005 | 479 | 0.19 | 2005 | 545 | 0.21 |
| 2006 | 1,188 | 0.23 | 2006 | 1,434 | 0.22 |
| 2007 | 1,508 | 0.20 | 2007 | 1,360 | 0.20 |
| 2008 | 2,207 | 0.24 | 2008 | 2,157 | 0.24 |
| 2009 | 2,544 | 0.21 | 2009 | 2,360 | 0.22 |
| 2010 | 2,674 | 0.22 | 2010 | 3,119 | 0.21 |

Source: NMFS Commercial Fisheries Database

In FY2010, 143 vessels with federal dogfish permits were reported in the dealer data to have had dogfish revenues greater than 5% of total revenue (dogfish revenue range $23 to 73,634, average = $11,933; dogfish rev / total rev range 5.0% to 100%, average = 10.0%).

### 6.5.3 Port and Community Description

U.S. fishing communities directly involved in the harvest or processing of dogfish are found in coastal states from Maine through North Carolina. This EA is most concerned with the top dogfish ports which are identified in Table 15. Spiny dogfish landings were reported from a total of 68 unique ports in the dealer data. Landings by port for FY2010 are given in Table 15. Gloucester, MA accounted for the largest share of total FY2010 landings (16.79%), followed by Chatham, MA (10.95%), Hatteras, NC (9.32%), VA Beach/Lynnhaven, VA (7.04%), Point Pleasant, NJ (5.59%), and New Bedford, MA (4.19%).

Spiny dogfish revenue was calculated as a % of total port revenue and was both greater than $100,000 and greater than 1% of port revenue in Virginia Beach/Lynnhaven, VA (29.54%), Hatteras, NC (6.97%), Rye, NH (5.33%), Chatham, MA (2.06%), and Ocean City, MD (1.32%). Port descriptions for these ports from the NEFSC's "Community Profiles for the Northeast US Fisheries" are provided in Appendix 1. A complete set of profiles is online: http://www.nefsc.noaa.gov/read/socialsci/community_profiles/

Table 15. Commercial landings (lb) and value of spiny dogfish by port for fishing year 2010.

| Port | Landings (lb) | Pct of Total | Value ($) | Pct of Total | Total Port Value ($) | Dogfish Value / Port Value |
|---|---|---|---|---|---|---|
| GLOUCESTER, MASSACHUSETTS | 2,437,614 | 16.79% | 511,986 | 16.50% | 53,347,408 | 0.96% |
| CHATHAM, MASSACHUSETTS | 1,590,193 | 10.95% | 281,041 | 9.06% | 13,634,909 | 2.06% |
| VIRGINIA BEACH/LYNNHAVEN, VIRGINIA | 1,021,543 | 7.04% | 208,372 | 6.71% | 705,394 | 29.54% |
| HATTERAS, NORTH CAROLINA | 1,353,608 | 9.32% | 206,196 | 6.64% | 2,956,349 | 6.97% |
| NEW BEDFORD, MASSACHUSETTS | 607,930 | 4.19% | 168,290 | 5.42% | 312,914,202 | 0.05% |
| POINT PLEASANT, NEW JERSEY | 812,216 | 5.59% | 161,905 | 5.22% | 26,084,624 | 0.62% |
| OTHER VIRGINIA, VIRGINIA | 259,017 | 1.78% | 161,002 | 5.19% | 44,988,422 | 0.36% |
| OCEAN CITY, MARYLAND | 529,926 | 3.65% | 115,718 | 3.73% | 8,741,828 | 1.32% |
| RYE, NEW HAMPSHIRE | 451,640 | 3.11% | 105,189 | 3.39% | 1,975,089 | 5.33% |
| All Others (59) | 5,455,628 | 37.57% | 1,183,690 | 38.14% | 469,836,037 | 0.25% |
| **Total** | **14,519,315** | **100.0%** | **3,103,389** | **100.0%** | **935,184,262** | **0.33%** |

Source: Unpublished NMFS dealer reports

## 7.0 ENVIRONMENTAL CONSEQUENCES – ANALYSIS OF DIRECT AND INDIRECT IMPACTS

This section presents an analysis of the impacts of the proposed actions (Section 5.0) on the VECs (Section 6.0). Table 16, below, is provided to re-iterate the management measures that correspond to each of the alternatives.

**Table 16. Catches and landings for the management alternatives.**

| Alternatives | ABC | ACL | ACT | TAL | Commercial Quota | Trip Limit |
|---|---|---|---|---|---|---|
| Alternative 1a (Mid-Atlantic Council Recommendation) | 44.737 | | | 35.740 | 35.694 | 4,000 |
| Alternative 1b (NMFS Proposed Action; New England Council Recommendation) | | | | | 35.694 | 3,000 |
| Alternative 2 (Consistent with ASMFC) | | | | | 30.000 | 3,000 |
| Alternative 3 (Status quo; No Action) | NA | NA | NA | NA | 20.000 | 3,000 |

In comparing the alternatives, the proposed 2012 allowable landings under each alternative are compared to the 2011 landings limits as well as the 2010 realized landings. The relative increase or decrease under the alternatives is then expressed as a percentage (Table 17).

**Table 17. Percent difference in 2012 landings limits for each alternative relative to 2011 limits and 2010 landings.**

| | | Alternative 1a (Maximum Quota and Trip Limit) | Alternative 1b (Maximum Quota and Status Quo Trip Limit) | Alternative 2 (ASMFC Quota) | Alternative 3 (Status quo) |
|---|---|---|---|---|---|
| **2011 limits** | **Quota** | +78.47% | +78.47% | +50.00% | 0.0 |
| | **Trip Limit** | +50.00% | 0.0 | 0.0 | 0.0 |
| **2010 landings** | **Commercial Landings** | +145.44% | +145.44% | +106.28% | +37.52% |

A hypothetical consideration of the interaction between resource availability and harvest limits and how these factors influence fishing effort is summarized in Table 18. Changes in landings limits can produce changes in fishing effort and interactions between fishing gear and habitat,

non-target species and protected species is related to these changes in fishing effort. The direction (increase or decrease) and magnitude (how much) of the change is also dependent on other factors such as the availability of fish to the fleet. Availability may be a function of both spatial distribution and abundance. While the magnitude of any change in effort is difficult to quantify, general expectations exist about the directionality of changes in effort in response to changes in landings limits and availability (Table 18).

**Table 18. Expected changes in fishing effort that result from changes to landings limits and fish availability.**

| Change in quota | Fish abundance/availability | | |
|---|---|---|---|
| | **Decrease in availability** | **No change in availability** | **Increase in availability** |
| **Decrease in quota** | Fishing effort (number of trips) may decrease as a result of a decrease in quota; however, because of the decrease in availability (trips catching fewer fish), fishermen may need to take additional trips to offset the lower cpue; managers may reduce trip limits or adjust regulations that extend the fishing season and affect effort; therefore fishing effort may be the same or increase. | Fishing effort may decrease as a result of a decrease in quota under similar availability (trips catching similar amounts of fish); however, managers may reduce trip limits or adjust regulations that extend the fishing season and affect effort; therefore fishing effort may be the same or decrease. | Fishing effort may decrease as a result of a decrease in quota; likewise under increased availability (trips catching more fish), effort may decrease; however, managers may reduce trip limits or adjust regulations that extend the fishing season and affect effort; therefore fishing effort may be the same or decrease. |
| **No change in quota** | Fishing effort may remain the same as the quota has not changed; however, because of the decrease in availability (trips catching fewer fish), fishermen may need to take more trips to catch the same amount of fish; therefore fishing effort may be the same or increase. | Fishing effort may remain the same given the quota has not changed and availability is expected to be similar. | Fishing effort may remain the same as the quota has not changed; however, because of the increase in availability (trips catching more fish), fishermen may be able to catch the same amount of fish with fewer trips thus decreasing effort; therefore fishing effort may be the same or decrease. |
| **Increase in quota** | Fishing effort may increase in response to the increase in quota; because of the decrease in availability (trips catching fewer fish), fishermen may need to take more trips to catch the same amount of fish; however, managers may increase trip limits or adjust regulations in response to the higher quota allowing fewer trips to catch more fish; therefore, fishing effort may be the same or increase. | Fishing effort may increase in response to the increase in quota under similar fish availability due to fishermen taking more trips to catch quota; however, managers may increase trip limits or adjust regulations in response to the higher quota allowing fewer trips to catch more fish; therefore, fishing effort may be the same or increase. | Fishing effort may increase in response to the increase in quota; because of the increase in availability (trips catching more fish), fishermen may be able to catch the same amount of fish with fewer trips thus decreasing effort; managers may increase trip limits or adjust regulations, but this may be offset by higher cpue; therefore, fishing effort may be the same or decrease, depending on the combination of factors. |

For the target species, the effects of changes in effort are only important with regard to the removal of individuals from the population. Thus, consideration of effort is primarily focused on VECs other than the target or managed resource. A decrease in effort may result in positive impacts (+) as a result of fewer encounter rates with non-targets or ESA listed and MMPA protected species and fewer habitat gear impacts, and an increase in effort may result in a negative impact (-). Similar effort results in neutral impacts (0). The commercial fishery may avoid non-target species, particularly those that cannot be landed because commercial fishermen do not find it lucrative to spend additional fuel costs and resources sorting/processing species that the commercial vessels do not have permits to land or a market to sell.

For all the alternatives, the availability of the spiny dogfish resource is projected to increase approximately 12% in 2012 (NEFSC 2011). Since this is less than the proportional increase in quota under Alternatives 1a/1b and 2 (78.5% and 50%, respectively) overall effort would be expected to increase if the full quota is harvested under these quota alternatives. However, while the number of directed spiny dogfish gillnet trips could increase due to the extended season (i.e., compared to no action), the effective fishing effort (e.g., soak time per trip, days absent, etc.) may actually decline due to the increased availability of dogfish (Table 18). Additional important factors that would constrain effort include a substantial non-directed component of the fishery and the restrictions on harvest/possession in state waters that are consistent with Alternative 2 trip limits and quota.

With regard to trip limits, potentially greater trip-level effort under Alternative 1a may be offset by the shortened season as the quota is caught more quickly compared to Alternative 1b which proposes the same quota but under status quo trip limits. It is expected that the aggregate annual effort associated with each of these two alternatives is likely to be un-differentiable.

Among all the alternatives, the potential for changes in overall effort and associated impacts are expected to be greatest for Alternatives 1a/b, less so for Alternative 2, and null for Alternative 3. Nevertheless, the magnitude of the change in effort will be constrained by a number of factors that will make it likely that impacts to VECs will be low negative.

## 7.1. Biological Impacts

Biological impacts include the effects of the actions on the managed resource and non-target species, but not including protected species which are addressed in Section 7.3. The overall catch limits under Alternatives 1a and 1b are expressly intended to prevent overfishing which would result in a fishing mortality rate for spiny dogfish more likely to result in stock growth than stock reduction. This means corresponding positive impacts on the spiny dogfish population are associated with all these alternatives despite the large increase in quota. It follows, then that relatively lower catches under Alternatives 2 and 3 would correspond to greater positive impacts.

A higher trip limit differentiates Alternative 1a (4,000 lb) from all the other alternatives (3,000 lb), the quota would likely be caught more quickly under Alternative 1b. Nevertheless, since the total amount of landed spiny dogfish would be controlled by the quotas, this difference is not relevant to impacts on the managed spiny dogfish resource.

With regard to non-target species, impacts are related to changes in effort which has been thoroughly explained. Impacts associated with Alternatives 1a/1b and 2 compared to status quo may be potentially negative. However, as stated above, additional factors will likely constrain effort such that any increases in negative impacts to non-target species are low negative for Alternatives 1a/1b and 2 and null for Alternative 3.

## 7.2 Habitat Impacts

The gear types more commonly associated with directed fishing for spiny dogfish are gillnets and hook-and-line and are not generally associated with negative habitat impacts. This combination of factors (low impact gear and increased resource availability) makes it likely that Alternatives 1a/1b and 2 will result in low negative impacts on habitat and EFH. Alternative 2 includes a smaller increase in commercial quota (50 %) and is expected to result in impacts on habitat that range from neutral to positive (Table 18). Alternative 3 (status quo) is identical to the 2011 quota and is also expected to result in neutral to positive impacts on habitat (Table 18). As to the impacts of trip limits, which differentiates Alternative 1a (4,000 lb) from all the other alternatives (3,000 lb), although the likelihood for increased directed fishing is greatest under the larger Alternative 1a trip limits, the greater abundance of the resource makes it unlikely that directed effort will increase substantially. The difference in total impacts between Alternatives 1a and 1b are not expected to be differentiable. Therefore the impacts on habitat are expected to range from low negative (Alternatives 1a/1b, 2) to null (Alternative 3).

## 7.3 Endangered Species and MMPA Protected Resource Impacts

Section 6.2 describes the ESA listed and MMPA protected species VEC and other related impact considerations. All fishing gears are required to meet gear restrictions as required under the Atlantic Large Whale Take Reduction Plan (ALWTRP) and Harbor Porpoise Take Reduction Plan (HPTRP). These plans contain measures designed to reduce interactions/impacts associated with fishing gears. Interaction between endangered / protected resources and spiny dogfish fishing gear is also affected by species' abundances.

The degree to which encounters with endangered and other protected species would change under any of the alternatives is related to how fishing effort would change if a given alternative is implemented. If the quota is increased over the Status Quo Alternative 3 level (as under Alternatives 1a/1b and 2), then it is possible that there could be some increase in the extent of *directed* dogfish fishing in the EEZ. If this occurs, then encounters with protected resources could be attributable to activity by the dogfish fishery. Directed fishing appears to be related to the type of gear used with much greater likelihood of directed effort with bottom longlines, less likelihood with bottom otter trawls, and gillnets somewhere in between. Additionally, because the abundance of dogfish has increased, larger catches are not necessarily associated with an increase in fishing effort. That a given trip would be made for the sole purpose of harvesting dogfish is also less likely the farther from shore that trip occurs. Nevertheless, in comparison to the Alternative 3, it is expected that directed dogfish fishing in the EEZ is more likely to increase than decrease under Alternatives 1a/1b and 2, and to the greatest degree under Alternative 1a.

As to the impacts of trip limits, which differentiates Alternative 1a (4,000 lb) from all the other alternatives (3,000 lb), although the likelihood for increased directed fishing is greatest under the larger Alternative 1a trip limits, the greater abundance of the resource makes it unlikely that directed effort will increase substantially. The difference in total impacts between Alternatives

1a and 1b are not expected to be differentiable. Therefore the impacts on protected resources are expected to range from low negative (Alternatives 1a/1b, 2) to null Alternative 3.

The protected species that would be encountered from directed dogfish fishing would likely be similar to those which occurred in the historic North Carolina gill net fishery. As such, one might expect that encounters with coastal bottlenose dolphins, sea turtles, and harbor porpoises may occur (see Section 6.3). However, since the implementation of the Bottlenose Dolphin Take Reduction Plan and Harbor Porpoise Take Reduction Plan, more stringent rules are in place than existed when those previously mentioned encounters took place. Specifically, nets must be attended and no night time sets are allowed. Similarly, the Atlantic Large Whale Take Reduction Plan should reduce potential encounters with whales. Nevertheless, it is possible that protected resource encounters associated with spiny dogfish harvest may increase under Alternatives 1a/1b and 2 as compared to Alternative 3, and to the greatest degree under Alternative 1a.

It is likely with this potential for increased fishing, gear interactions with protected resources would also increase, resulting in low negative impacts to this VEC. There is the potential for continued low negative impacts to protected resources under Alternative 3. However, because the abundance of dogfish has increased greatly, effort is unlikely to increase substantially.

### 7.3.1 Atlantic Sturgeon Impacts

Formal consultation on the spiny dogfish fishery was reinitiated on February 9, 2012. NMFS has determined that there will not be any irreversible or irretrievable commitment of resources under section 7(d) of the ESA during the consultation period that would have the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures. NMFS has also determined that the continued authorization of the spiny dogfish fishery during the consultation period, including the authorization of the fishery to operate under the measures proposed in this action, is not likely to jeopardize the continued existence of ESA-listed species or result in the destructive or adverse modification of critical habitat.

On February 6, 2012, NMFS listed the Gulf of Maine distinct population segment of Atlantic sturgeon as threatened, and listed the New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs of Atlantic sturgeon as endangered (77 FR 5880 and 75 FR 5914). This action considered whether the spiny dogfish fishery, including implementation of the proposed action, is likely to jeopardize Atlantic sturgeon DPSs, as they were proposed to be listed, and concluded that is not. While there may be interactions between Atlantic sturgeon and gear used in the spiny dogfish fishery, the number of interactions that will occur during the duration of this action is not likely to cause an appreciable reduction in survival and recovery. This is supported by updated bycatch estimates based upon NEFOP data (2006-2010).

Atlantic sturgeon are known to be captured in sink gillnet, drift gillnet, and otter trawl gear. Of these gear types, sink gillnet gear poses the greatest known risk of mortality for bycaught sturgeon. Sturgeon deaths were rarely reported in the otter trawl observer dataset. Based on observer data, discard mortality in gillnets (except monkfish gillnets) is estimated to be 20%, while mortality in otter trawls is only 5%. In an updated, preliminary analysis, the Northeast Fisheries Science Center (NEFSC) was able to use data from the NEFOP database to provide updated estimates for the 2006 to 2010 timeframe. Data were limited by observer coverage to waters outside the coastal boundary (fzone>0) and north of Cape Hatteras, NC. Sturgeon included in the data set were those identified by federal observers as Atlantic sturgeon, as well as

those categorized as unknown sturgeon. At this time, data were limited to information collected by the NEFOP; limited data collected in the At-Sea Monitoring Program were not included, although preliminary views suggest the incidence of sturgeon encounters was low.

The preliminary analysis apportioned the sturgeon takes to specific gears. The analysis estimates that between 2006 and 2010, there were 2,250 to 3,862 encounters per year in gillnet and trawl fisheries (average = 3,118). Approximately 1,570 sturgeon per year were caught in sink gillnets (~364 mortalities), and 1,548 sturgeon per year were caught in otter trawls (~77 mortalities). Other gear types, including hook and line, were determined to have minimal impacts on Atlantic sturgeon mortality. Therefore, impacts on sturgeon from the spiny dogfish fishery are restricted to the impacts associated with only gillnet and trawl trips.

As described in Section 6.1.3, in FY2010, gillnet trips accounted for 68% of spiny dogfish landings, while otter trawl trips accounted for 20% of landings. Since most trawl trips occur in Gulf of Maine, Georges Bank, or Southern New England waters, those trips typically require the use of Northeast Multispecies, Scallop, or Monkfish DAS, or participation in a Multispecies sector. Therefore, most trawl trips that land dogfish are associated with those fisheries, and effort is constrained under their respective FMPs. On such trips, spiny dogfish are mostly landed incidentally to the target groundfish/monkfish species. Since there are so few directed dogfish trawl trips, and the discard mortality of sturgeon in trawls is so low (5%), the impacts of the dogfish trawl fishery on sturgeon are expected to be minimal.

A substantial proportion of gillnet trips that land spiny dogfish are also associated with DAS or sector fisheries. Therefore, the impacts of the proposed action on Atlantic sturgeon are largely limited to directed dogfish gillnet trips that are not associated with these other fisheries (i.e. some fraction of the 68% of trips that use gillnet). Directed spiny dogfish trips may occur without the use of DAS in several exemption areas, such as the Gulf of Maine/Georges Bank Dogfish Gillnet Exemption Area (July 1 – August 31), Nantucket Shoals Dogfish Exemption Area (June 1 – October 15), Southern New England Dogfish Gillnet Exemption Area (May 1- October 31), and the Mid-Atlantic Exemption Area (year round). Descriptions of these areas and their associated requirements can be found at http://www.nero.noaa.gov/sfd/sfdsdog.html.

Under Alternatives 1a and 1b, the spiny dogfish commercial quota would be increased by 78%. However, due to the characteristics of the fishery and its overlap with other fisheries, the proposed quota increase is not expected to result in a proportional increase in effort. Effort is expected to remain constant or decline during 2012 in the monkfish and groundfish fisheries. Dogfish landings on those trips would likely remain constant or decline due to the effort restrictions imposed in those fisheries, in conjunction with a status quo (Alternative 1b) or slightly increased (Alternative 1a) dogfish trip limit. Alternately, if the dogfish fishery remains open longer in 2012, dogfish that would have been discarded on those trips (under no action) may instead be retained.

Effort on directed spiny dogfish gillnet trips (i.e., in exemption areas) may increase under the proposed action, but would likely occur at a substantially lower rate than the quota increase. The large quota increase in conjunction with the status quo (3,000-lb) or slightly increased (4,000-lb) trip limit was intended to extend the fishing season and help prevent mid-year fishery closures (Alternatives 1a and 1b). While the number of directed spiny dogfish gillnet trips could increase due to the extended season (compared to no action), the effective fishing effort (e.g., soak time per trip, days absent, etc.) may actually decline due to the increased availability of dogfish (Table

18). Higher catch rates means that vessels could catch the same amount of fish in fewer trips. There is no reason to expect that any of the alternatives would lead to increased participation (i.e., more vessels) in the fishery. Under Alternative 1a (4,000-lb trip limit), the number of trips would likely remain constant or decline, as the quota could be reached earlier in the year triggering a closure, as compared to Alternative 1b (3,000-lb trip limit). Under Alternatives 1b and 2, there may be more trips at the end of the season if closures are avoided, but these trips and net soak times would likely be shorter due to the higher CPUE of dogfish. Under the no action alternative (Alternative 3), the number of trips would likely decline as the increased dogfish catch rates combined with the status quo (lower) quota and trip limit would result in the quota being harvested earlier in the year compared to 2011. Therefore, the no action alternative may have slightly positive impacts on Atlantic sturgeon.

Approximately 60% of spiny dogfish landings and 53% of trips are derived from just three statistical areas in the Gulf of Maine and Cape Cod regions (statistical areas 513, 514, and 521, Table 5). These trips mostly occur between May and August. Trips in this region are most likely to interact with the Gulf of Maine Atlantic sturgeon DPS, which was listed as threatened, not endangered. Therefore, any potential increases in fishing effort for spiny dogfish are likely to have less of an impact on the endangered DPSs than on the threatened DPS.

The ASMFC has approved the measures described in Alternative 2 for state waters in 2012 (50% quota increase). Therefore, even if Alternative 1a or 1b is approved and implemented in Federal waters, the effective commercial quota will still be 30.000 M lb since states will close to dogfish landings according to the allocations under that lower quota. Alternative 2 is expected to have neutral to slight positive impacts on ESA-listed species compared to no action, but the ASMFC's implementation of this alternative may help mitigate potential minor negative impacts of Alternative 1 on sturgeon, if implemented.

Given this combination of factors, the Alternatives 1a and 1b are likely to have neutral to slightly negative impacts on Atlantic sturgeon compared to other alternatives. Alternative 2 would also likely have neutral to slightly negative impacts on Atlantic sturgeon compared to the no action alternative. However, the impacts of Alternative 2 are likely to be less than Alternatives 1a and 1b due to the lower overall quota. Importantly, an increase in quota under any of the action alternatives (1a, 1b or 2) is not expected to result in substantial increases in fishing effort that would result in significant adverse effects on the Atlantic sturgeon DPSs.

Given the limited scope and timing of this action and the comparatively low contribution of the spiny dogfish fishery to Atlantic sturgeon mortality, the magnitude of interactions during the 2012 fishing year are not likely to result in jeopardy to the species based on current assessments of each DPS. Since Atlantic sturgeon DPSs have been listed under the ESA, formal consultations were reinitiated as required for the spiny dogfish fishery, as well as the related Multispecies and Monkfish fisheries, and additional evaluation will be included to describe any impacts of the fisheries on Atlantic sturgeon and define any measures needed to mitigate those impacts, if necessary. It is anticipated that any measures, terms and conditions included in an updated Biological Opinion will further reduce impacts to the species. It is expected that the completion of the Biological Opinion will occur in mid-2012.

## 7.4 Human Community Impacts

As noted in Section 6.4, the dealer data associate a very limited number of fishing communities with a high (> 5%) proportion of spiny dogfish revenue to total commercial landings revenue. Additionally, none of the alternatives proposes to decrease revenue relative to the baseline by decreasing the quota. Alternatives 1a/1b and 2 would be increase revenue levels and Alternative 3 would maintain status quo revenue from dogfish landings. As such, positive (Alternatives 1a/1b, 2) or slight positive (Alternative 3) economic impacts are expected under any of the scenarios under consideration.

By itself, maintaining the status quo trip limit (3,000 lb under Alternatives 1b, 2, 3) should result in null impacts to human communities. The larger trip limit proposed under Alternative 1a could result in greater immediate revenue per trip but a shorter fishing under Alternative 1a than under 1b which have identical trip limits. Nevertheless, the increases in quota under Alternatives 1a/1b and 2 is expected to prolong the fishing season and positive impacts to human communities over the course of the fishing year compared to the status quo (Alternative 3).

Total spiny dogfish revenue from the last complete fishing year (FY2010) was reported as $3.119 million. Using the average FY2010 price/lb ($0.21) landing the full FY2012 quota under Alternatives 1a/1b corresponds to $7.655 million. Using the same approach, revenue would be expected to increase to $6.434 million under Alternative 2 and $4.289 million under Alternative 3. Assuming the distribution of landings by port is consistent with FY2010 (Section 6.5), the increases in dogfish revenue should benefit those ports that are more heavily dependent on dogfish revenue than other communities, assuming all other revenue sources do not change (e.g., Virginia Beach / Lynnhaven, VA, Hatteras, NC, Rye, NH, Chatham, MA, and Ocean City, MD – Table 15).

## 7.5 Cumulative Effects Analysis

A cumulative effects analysis (CEA) is required by the Council on Environmental Quality (CEQ) (40 CFR part 1508.7). The purpose of CEA is to consider the combined effects of many actions on the human environment over time that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective, but rather, the intent is to focus on those effects that are truly meaningful. A formal cumulative impact assessment is not necessarily required as part of an EA under NEPA as long as the significance of cumulative impacts have been considered (U.S. EPA 1999). The following remarks address the significance of the expected cumulative impacts as they relate to the federally managed spiny dogfish fishery.

### 7.5.1 Consideration of the VECs

In section 6.0 (Description of the Affected Environment), the VECs that exist within the spiny dogfish fishery environment are identified. Therefore, the significance of the cumulative effects will be discussed in relation to the VECs listed below.

1. Managed resource (spiny dogfish)
2. Non-target species
3. Habitat including EFH for the managed resource and non-target species
4. ESA listed and MMPA protected species
5. Human communities

### 7.5.2 Geographic Boundaries

The analysis of impacts focuses on actions related to the harvest of spiny dogfish. The core geographic scope for each of the VECs is focused on the Western Atlantic Ocean (section 6.0). The core geographic scopes for the managed resources are the range of the management units (section 6.1). For non-target species, those ranges may be expanded and would depend on the biological range of each individual non-target species in the Western Atlantic Ocean. For habitat, the core geographic scope is focused on EFH within the EEZ but includes all habitat utilized by spiny dogfish and non-target species in the Western Atlantic Ocean. The core geographic scope for endangered and protected resources can be considered the overall range of these VECs in the Western Atlantic Ocean. For human communities, the core geographic boundaries are defined as those U.S. fishing communities directly involved in the harvest or processing of the managed resources, which were found to occur in coastal states from Maine through North Carolina (section 6.4).

### 7.5.3 Temporal Boundaries

The temporal scope of past and present actions for VECs is primarily focused on actions that have occurred after FMP implementation (1990). For endangered and other protected resources, the scope of past and present actions is on a species-by-species basis (section 6.3) and is largely focused on the 1980s and 1990s through the present, when NMFS began generating stock assessments for marine mammals and sea turtles that inhabit waters of the U.S. EEZ. The temporal scope of future actions for all five VECs extends about three years (2014) into the future. This period was chosen because the dynamic nature of resource management and lack of information on projects that may occur in the future make it very difficult to predict impacts beyond this timeframe with any certainty.

### 7.5.4 Actions Other Than Those Proposed in this Amendment

The impacts of each of the alternatives considered in this specifications document are given in section 7.1 through 7.4. Table 23 presents meaningful past (P), present (Pr), or reasonably foreseeable future (RFF) actions to be considered other than those actions being considered in this specifications document. These impacts are described in chronological order and qualitatively, as the actual impacts of these actions are too complex to be quantified in a meaningful way. When any of these abbreviations occur together (i.e., P, Pr, RFF), it indicates that some past actions are still relevant to the present and/or future actions.

***Past and Present Actions***

The historical management practices of the Council have resulted in positive impacts on the health of the spiny dogfish stock (section 6.1). Actions have been taken to manage the commercial fisheries for this species through amendment actions. In addition, the annual specifications process is intended to provide the opportunity for the Council and NMFS to regularly assess the status of the fishery and to make necessary adjustments to ensure that there is a reasonable expectation of meeting the objectives of the FMP. The statutory basis for federal fisheries management is the MSA. To the degree with which this regulatory regime is complied, the cumulative impacts of past, present, and reasonably foreseeable future federal fishery management actions on the VECs should generally be associated with positive long-term outcomes. Constraining fishing effort through regulatory actions can often have negative short-

term socioeconomic impacts. These impacts are usually necessary to bring about long-term sustainability of a given resource, and as such, should, in the long-term, promote positive effects on human communities, especially those that are economically dependent upon the spiny dogfish stock.

Non-fishing activities that introduce chemical pollutants, sewage, changes in water temperature, salinity, dissolved oxygen, and suspended sediment into the marine environment pose a risk to all of the identified VECs. Human-induced non-fishing activities tend to be localized in nearshore areas and marine project areas where they occur. Examples of these activities include, but are not limited to agriculture, port maintenance, beach nourishment, coastal development, marine transportation, marine mining, dredging and the disposal of dredged material. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and, as such, may indirectly constrain the sustainability of the managed resources, non-target species, and protected resources. Decreased habitat suitability would tend to reduce the tolerance of these VECs to the impacts of fishing effort. Mitigation of this outcome through regulations that would reduce fishing effort could then negatively impact human communities. The overall impact to the affected species and its habitat on a population level is unknown, but likely neutral to low negative, since a large portion of this species has a limited or minor exposure to these local non-fishing perturbations.

In addition to guidelines mandated by the MSA, NMFS reviews these types of effects through the review processes required by Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act for certain activities that are regulated by federal, state, and local authorities. The jurisdiction of these activities is in "waters of the U.S." and includes both riverine and marine habitats.

### *Reasonably Foreseeable Future Actions*

For many of the proposed non-fishing activities to be permitted under other federal agencies (such as beach nourishment, offshore wind facilities, etc.), those agencies would conduct examinations of potential impacts on the VECs. The MSA (50 CFR 600.930) imposes an obligation on other federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH. The eight Fishery Management Councils are engaged in this review process by making comments and recommendations on any federal or state action that may affect habitat, including EFH, for their managed species and by commenting on actions likely to substantially affect habitat, including EFH.

In addition, under the Fish and Wildlife Coordination Act (Section 662), “whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the U.S., or by any public or private agency under federal permit or license, such department or agency first shall consult with the U.S. Fish and Wildlife Service (USFWS), Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular state wherein the” activity is taking place. This act provides another avenue for review of actions by other federal and state agencies that may impact resources that NMFS manages in the reasonably foreseeable future.

In addition, NMFS and the USFWS share responsibility for implementing the ESA. ESA requires NMFS to designate "critical habitat" for any species it lists under the ESA (i.e., areas

that contain physical or biological features essential to conservation, which may require special management considerations or protection) and to develop and implement recovery plans for threatened and endangered species. The ESA provides another avenue for NMFS to review actions by other entities that may impact endangered and protected resources whose management units are under NMFS' jurisdiction.

### 7.5.5 Magnitude and Significance of Cumulative Effects

In determining the magnitude and significance of the cumulative effects, the additive and synergistic effects of the proposed action, as well as past, present, and future actions, must be taken into account. The following section discusses the effects of these actions on each of the VECs.

**Table 19. Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document).**

| Action | Description | Impacts on Managed Resource | Impacts on Non-target Species | Impacts on Habitat and EFH | Impacts on Protected Species | Impacts on Human Communities |
|---|---|---|---|---|---|---|
| P, Pr Original FMP and subsequent Amendments and Frameworks to the FMP | Established commercial management measures | **Indirect Positive** Regulatory tool available to rebuild and manage stocks | **Indirect Positive** Reduced fishing effort | **Indirect Positive** Reduced fishing effort | **Indirect Positive** Reduced fishing effort | **Indirect Positive** Benefited domestic businesses |
| P, Pr Spiny dogfish Specifications | Establish annual quotas, trip limits | **Indirect Positive** Regulatory tool to specify catch limits, and other regulation; allows response to annual stock updates | **Indirect Positive** Reduced effort levels and gear requirements | **Indirect Positive** Reduced effort levels and gear requirements | **Indirect Positive** Reduced effort levels and gear requirements | **Indirect Positive** Benefited domestic businesses |
| P, Pr Developed and Applied Standardized Bycatch Reporting Methodology | Established acceptable level of precision and accuracy for monitoring of bycatch in fisheries | **Neutral** May improve data quality for monitoring total removals of managed resource | **Neutral** May improve data quality for monitoring removals of non-target species | **Neutral** Will not affect distribution of effort | **Neutral** May increase observer coverage and will not affect distribution of effort | **Potentially Indirect Negative** May impose an inconvenience on vessel operations |
| Pr, RFF Omnibus Amendment ACLs/AMs Implemented | Establish ACLs and AMs for all three plan species | **Potentially Indirect Positive** Pending full analysis | **Potentially Indirect Positive** Pending full analysis | **Potentially Indirect Positive** Pending full analysis | **Potentially Indirect Positive** Pending full analysis | **Potentially Indirect Positive** Pending full analysis |
| P, Pr, RFF Agricultural runoff | Nutrients applied to agricultural land are introduced into aquatic systems | **Indirect Negative** Reduced habitat quality | **Indirect Negative** Reduced habitat quality | **Direct Negative** Reduced habitat quality | **Indirect Negative** Reduced habitat quality | **Indirect Negative** Reduced habitat quality negatively affects resource |
| P, Pr, RFF Port maintenance | Dredging of coastal, port and harbor areas for port maintenance | **Uncertain – Likely Indirect Negative** Dependent on mitigation effects | **Uncertain – Likely Indirect Negative** Dependent on mitigation effects | **Uncertain – Likely Direct Negative** Dependent on mitigation effects | **Uncertain – Likely Indirect Negative** Dependent on mitigation effects | **Uncertain – Likely Mixed** Dependent on mitigation effects |

**Table 19 (Continued). Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document).**

| Action | Description | Impacts on Managed Resource | Impacts on Non-target Species | Impacts on Habitat and EFH | Impacts on Protected Species | Impacts on Human Communities |
|---|---|---|---|---|---|---|
| P, Pr, RFF Offshore disposal of dredged materials | Disposal of dredged materials | **Indirect Negative** Reduced habitat quality | **Indirect Negative** Reduced habitat quality | **Direct Negative** Reduced habitat quality | **Indirect Negative** Reduced habitat quality | **Indirect Negative** Reduced habitat quality negatively affects resource viability |
| P, Pr, RFF Beach nourishment | Offshore mining of sand for beaches | **Indirect Negative** Localized decreases in habitat quality | **Indirect Negative** Localized decreases in habitat quality | **Direct Negative** Reduced habitat quality | **Indirect Negative** Localized decreases in habitat quality | **Mixed** Positive for mining companies, possibly negative for fishing industry |
| | Placement of sand to nourish beach shorelines | **Indirect Negative** Localized decreases in habitat quality | **Indirect Negative** Localized decreases in habitat quality | **Direct Negative** Reduced habitat quality | **Indirect Negative** Localized decreases in habitat quality | **Positive** Beachgoers like sand; positive for tourism |
| P, Pr, RFF Marine transportation | Expansion of port facilities, vessel operations and recreational marinas | **Indirect Negative** Localized decreases in habitat quality | **Indirect Negative** Localized decreases in habitat quality | **Direct Negative** Reduced habitat quality | **Indirect Negative** Localized decreases in habitat quality | **Mixed** Positive for some interests, potential displacement for others |
| P, Pr, RFF Installation of pipelines, utility lines and cables | Transportation of oil, gas and energy through pipelines, utility lines and cables | **Uncertain – Likely Indirect Negative** Dependent on mitigation effects | **Uncertain – Likely Indirect Negative** Dependent on mitigation effects | **Uncertain – Likely Direct Negative** Reduced habitat quality | **Potentially Direct Negative** Dependent on mitigation effects | **Uncertain – Likely Mixed** Dependent on mitigation effects |

**Table 19 (Continued). Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document).**

| Action | Description | Impacts on Managed Resource | Impacts on Non-target Species | Impacts on Habitat and EFH | Impacts on Protected Species | Impacts on Human Communities |
|---|---|---|---|---|---|---|
| RFF Offshore Wind Energy Facilities (within 3 years) | Construction of wind turbines to harness electrical power | **Uncertain – Likely Indirect Negative** Dependent on mitigation effects | **Uncertain – Likely Indirect Negative** Dependent on mitigation effects | **Potentially Direct Negative** Localized decreases in habitat quality possible | **Uncertain – Likely Indirect Negative** Dependent on mitigation effects | **Uncertain – Likely Mixed** Dependent on mitigation effects |
| Pr, RFF Liquefied Natural Gas (LNG) terminals (within 3 years) | Transport natural gas via tanker to terminals offshore and onshore | **Uncertain – Likely Indirect Negative** Dependent on mitigation effects | **Uncertain – Likely Indirect Negative** Dependent on mitigation effects | **Potentially Direct Negative** Localized decreases in habitat quality possible | **Uncertain – Likely Indirect Negative** Dependent on mitigation effects | **Uncertain – Likely Mixed** Dependent on mitigation effects |
| RFF Convening Gear Take Reduction Teams (within next 3 years) | Recommend measures to reduce mortality and injury to marine mammals | **Indirect Positive** Will improve data quality for monitoring total removals | **Indirect Positive** Reducing availability of gear could reduce bycatch | **Indirect Positive** Reducing availability of gear could reduce gear impacts | **Indirect Positive** Reducing availability of gear could reduce encounters | **Indirect Negative** Reducing availability of gear could reduce revenues |
| RFF Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (w/in next 3 years) | May recommend strategies to prevent the bycatch of sea turtles in commercial fisheries operations | **Indirect Positive** Will improve data quality for monitoring total removals | **Indirect Positive** Reducing availability of gear could reduce bycatch | **Indirect Positive** Reducing availability of gear could reduce gear impacts | **Indirect Positive** Reducing availability of gear could reduce encounters | **Indirect Negative** Reducing availability of gear could reduce revenues |

#### 7.5.5.1 Managed Resources

Those past, present, and reasonably foreseeable future actions, whose effects may impact the managed resources and the direction of those potential impacts, are summarized in Table 23. The indirectly negative actions described in Table 23 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on the managed resource is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on productivity of the managed resources is unquantifiable. As described above (section 7.5.4), NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' managed resources prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on resources under NMFS' jurisdiction.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on the managed resource. It is anticipated that the future management actions, described in Table 24, will result in additional indirect positive effects on the managed resources through actions which reduce and monitor bycatch, protect habitat, and protect ecosystem services on which spiny dogfish productivity depends. The 2012 fishing year will be the first year of implementation for an Amendment which requires specification of ACLs/AMs and catch accountability. This represents a major change to the current management program and is expected to lead to improvements in resource sustainability over the long-term. These impacts could be broad in scope. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to spiny dogfish have had a positive cumulative effect.

Commercial quotas for the managed resource have been specified to ensure the stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The impacts from annual specification of management measures established in previous years on the managed resource are largely dependent on how effective those measures were in meeting their intended objectives (i.e., preventing overfishing, achieve OY) and the extent to which mitigating measures were effective. The proposed action in this document would positively reinforce the past and anticipated positive cumulative effects on the spiny dogfish stock, by achieving the objectives specified in the FMP. Therefore, the proposed action would not have any significant effect on the managed resources individually or in conjunction with other anthropogenic activities (see Table 24).

**Table 20. Summary of the effects of past, present, and reasonably foreseeable future actions on the managed resource.**

| Action | Past to the Present | | Reasonably Foreseeable Future |
|---|---|---|---|
| Original FMP and subsequent Amendments and Frameworks to the FMP | **Indirect Positive** | | |
| Spiny dogfish Specifications | **Indirect Positive** | | |
| Developed and Implement Standardized Bycatch Reporting Methodology | **Neutral** | | |
| Amendment to address ACLs/AMs implemented | | **Potentially Indirect Positive** | |
| Agricultural runoff | **Indirect Negative** | | |
| Port maintenance | **Uncertain – Likely Indirect Negative** | | |
| Offshore disposal of dredged materials | **Indirect Negative** | | |
| Beach nourishment – Offshore mining | **Indirect Negative** | | |
| Beach nourishment – Sand placement | **Indirect Negative** | | |
| Marine transportation | **Indirect Negative** | | |
| Installation of pipelines, utility lines and cables | **Uncertain – Likely Indirect Negative** | | |
| National Offshore Aquaculture Act of 2007 | **Potentially Indirect Negative** | | |
| Offshore Wind Energy Facilities (within 3 years) | | | **Uncertain – Likely Indirect Negative** |
| Liquefied Natural Gas (LNG) terminals (within 3 years) | | **Uncertain – Likely Indirect Negative** | |
| Convening Gear Take Reduction Teams (within 3 years) | | | **Indirect Positive** |
| Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 3 years) | | | **Indirect Positive** |
| **Summary of past, present, and future actions excluding those proposed in this specifications document** | **Overall, actions have had, or will have, positive impacts on the managed resources**<br>*** See section 7.5.5.1 for explanation.** | | |

#### 7.5.5.2 Non-Target Species or Bycatch

Those past, present, and reasonably foreseeable future actions, whose effects may impact non-target species and the direction of those potential impacts, are summarized in Table 23. The effects of indirectly negative actions described in Table 23 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on non-target species is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on productivity of non-target resources and the oceanic ecosystem is unquantifiable. As described above (section 7.5.4), NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' managed resources prior to permitting or implementation of those projects. At this time, NMFS can consider impacts to non-target species (federally-managed or otherwise) and comment on potential impacts. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on resources within NMFS' jurisdiction.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on non-target species. Implementation and application of a standardized bycatch reporting methodology would have a particular impact on non-target species by improving the methods which can be used to assess the magnitude and extent of a potential bycatch problem. Better assessment of potential bycatch issues allows more effective and specific management measures to be developed to address a bycatch problem. It is anticipated that future management actions, described in Table 25, will result in additional indirect positive effects on non-target species through actions which reduce and monitor bycatch, protect habitat, and protect ecosystem services on which the productivity of many of these non-target resources depend. The impacts of these future actions could be broad in scope, and it should be noted the managed resource and non-target species are often coupled in that they utilize similar habitat areas and ecosystem resources on which they depend. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful have had a positive cumulative effect on non-target species.

Commercial quotas and trip limits for the managed resource have been specified to ensure the stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document have impacts that range from neutral to positive or negative impacts, and would not change the past and anticipated positive cumulative effects on non-target species and thus, would not have any significant effect on these species individually or in conjunction with other anthropogenic activities (Table 25).

**Table 21. Summary of the effects of past, present, and reasonably foreseeable future actions on the non-target species.**

| Action | Past to the Present | | Reasonably Foreseeable Future |
|---|---|---|---|
| Original FMP and subsequent Amendments and Frameworks to the FMP | **Indirect Positive** | | |
| Spiny dogfish Specifications | **Indirect Positive** | | |
| Developed and Implement Standardized Bycatch Reporting Methodology | **Neutral** | | |
| Amendment to address ACLs/AMs implemented | | **Potentially Indirect Positive** | |
| Agricultural runoff | **Indirect Negative** | | |
| Port maintenance | **Uncertain – Likely Indirect Negative** | | |
| Offshore disposal of dredged materials | **Indirect Negative** | | |
| Beach nourishment – Offshore mining | **Indirect Negative** | | |
| Beach nourishment – Sand placement | **Indirect Negative** | | |
| Marine transportation | **Indirect Negative** | | |
| Installation of pipelines, utility lines and cables | **Uncertain – Likely Indirect Negative** | | |
| National Offshore Aquaculture Act of 2007 | **Potentially Indirect Negative** | | |
| Offshore Wind Energy Facilities (within 3 years) | | | **Uncertain – Likely Indirect Negative** |
| Liquefied Natural Gas (LNG) terminals (within 3 years) | | **Uncertain – Likely Indirect Negative** | |
| Convening Gear Take Reduction Teams (within 3 years) | | | **Indirect Positive** |
| Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 3 years) | | | **Indirect Positive** |
| **Summary of past, present, and future actions excluding those proposed in this specifications document** | **Overall, actions have had, or will have, positive impacts on the non-target species**<br>*** See section 7.5.5.2 for explanation.** | | |

#### 7.5.5.3 Habitat (Including EFH)

Those past, present, and reasonably foreseeable future actions, whose effects may impact habitat (including EFH) and the direction of those potential impacts, are summarized in Table 23. The direct and indirect negative actions described in Table 23 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on habitat is expected to be limited due to a lack of exposure to habitat at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on habitat and EFH is unquantifiable. As described above (section 7.5.4), NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' managed resources and the habitat on which they rely prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of direct and indirect negative impacts those actions could have on habitat utilized by resources under NMFS' jurisdiction.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on habitat and EFH. The actions have constrained fishing effort at a large scale and locally, and have implemented gear requirements, which may reduce habitat impacts. As required under these FMP actions, EFH and HAPCs were designated for the managed resources. It is anticipated that the future management actions, described in Table 26, will result in additional direct or indirect positive effects on habitat through actions which protect EFH for federally-managed species and protect ecosystem services on which these species' productivity depends. These impacts could be broad in scope. All of the VECs are interrelated; therefore, the linkages among habitat quality and EFH, managed resources and non-target species productivity, and associated fishery yields should be considered. For habitat and EFH, there are direct and indirect negative effects from actions which may be localized or broad in scope; however, positive actions that have broad implications have been, and it is anticipated will continue to be, taken to improve the condition of habitat. There are some actions, which are beyond the scope of NMFS and Council management such as coastal population growth and climate changes, which may indirectly impact habitat and ecosystem productivity. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to habitat have had a neutral to positive cumulative effect.

Commercial quotas and trip limits for the managed resource have been specified to ensure the stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document would not change the past and anticipated cumulative effects on habitat and thus, would not have any significant effect on habitat individually or in conjunction with other anthropogenic activities (Table 26).

**Table 22. Summary of the effects of past, present, and reasonably foreseeable future actions on the habitat.**

| Action | Past to the Present | | Reasonably Foreseeable Future |
|---|---|---|---|
| Original FMP and subsequent Amendments and Frameworks to the FMP | **Indirect Positive** | | |
| Spiny dogfish Specifications | **Indirect Positive** | | |
| Developed and Implement Standardized Bycatch Reporting Methodology | **Neutral** | | |
| Amendment to address ACLs/AMs implemented | | **Potentially Indirect Positive** | |
| Agricultural runoff | **Direct Negative** | | |
| Port maintenance | **Uncertain – Likely Direct Negative** | | |
| Offshore disposal of dredged materials | **Direct Negative** | | |
| Beach nourishment – Offshore mining | **Direct Negative** | | |
| Beach nourishment – Sand placement | **Direct Negative** | | |
| Marine transportation | **Direct Negative** | | |
| Installation of pipelines, utility lines and cables | **Uncertain – Likely Direct Negative** | | |
| National Offshore Aquaculture Act of 2007 | **Direct Negative** | | |
| Offshore Wind Energy Facilities (within 3 years) | | | **Potentially Direct Negative** |
| Liquefied Natural Gas (LNG) terminals (within 3 years) | | **Potentially Direct Negative** | |
| Convening Gear Take Reduction Teams (within 3 years) | | | **Indirect Positive** |
| Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 3 years) | | | **Indirect Positive** |
| **Summary of past, present, and future actions excluding those proposed in this specifications document** | **Overall, actions have had, or will have, neutral to positive impacts on habitat, including EFH**<br>*** See section 7.5.5.3 for explanation.** | | |

#### 7.5.5.4 ESA Listed and MMPA Protected Species

Those past, present, and reasonably foreseeable future actions, whose effects may impact the protected resources and the direction of those potential impacts, are summarized in Table 23. The indirectly negative actions described in Table 23 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on protected resources, relative to the range of many of the protected resources, is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on protected resources either directly or indirectly is unquantifiable. As described above (section 7.5.4), NMFS has several means, including ESA, under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' protected resources prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on protected resources under NMFS' jurisdiction.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on ESA listed and MMPA protected species through the reduction of fishing effort (potential interactions) and implementation of gear requirements. It is anticipated that the future management actions, specifically those recommended by the ALWTRT and the development of strategies for sea turtle conservation described in Table 27, will result in additional indirect positive effects on the protected resources. These impacts could be broad in scope. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to protected resources have had a positive cumulative effect.

Commercial quotas and trip limits for the managed resource have been specified to ensure the stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document would not change the past and anticipated cumulative effects on ESA listed and MMPA protected species and thus, would not have any significant effect on protected resources individually or in conjunction with other anthropogenic activities (Table 27).

NMFS will implement any appropriate measures outlined in the BO to mitigate harm to Atlantic sturgeon. Further, the encounter rates and mortalities for Atlantic sturgeon that have been calculated as part of the preliminary analysis of NEFOP data (as discussed in Sec 7.4) include encounters and mortalities by all fisheries utilizing sink gillnet and otter trawl gear, including the groundfish, monkfish, bluefish, skate, and other fisheries. Based upon the above estimates, the rates of encounters and mortalities by the spiny dogfish fishery are lower than the estimates in most of those fisheries. Finally, this EA evaluates a temporary action, one that is only in place for FY 2012. Therefore, cumulative impacts resulting from the approval of the spiny dogfish fishery specifications are not likely to be significant.

**Table 23. Summary of the effects of past, present, and reasonably foreseeable future actions on the protected resources.**

| Action | Past to the Present | | Reasonably Foreseeable Future |
|---|---|---|---|
| Original FMP and subsequent Amendments and Frameworks to the FMP | **Indirect Positive** | | |
| Spiny dogfish Specifications | **Indirect Positive** | | |
| Developed and Implement Standardized Bycatch Reporting Methodology | **Neutral** | | |
| Amendment to address ACLs/AMs implemented | | **Potentially Indirect Positive** | |
| Agricultural runoff | **Indirect Negative** | | |
| Port maintenance | **Uncertain – Likely Indirect Negative** | | |
| Offshore disposal of dredged materials | **Indirect Negative** | | |
| Beach nourishment – Offshore mining | **Indirect Negative** | | |
| Beach nourishment – Sand placement | **Indirect Negative** | | |
| Marine transportation | **Indirect Negative** | | |
| Installation of pipelines, utility lines and cables | **Potentially Direct Negative** | | |
| National Offshore Aquaculture Act of 2007 | **Potentially Indirect Negative** | | |
| Offshore Wind Energy Facilities (within 3 years) | | | **Uncertain – Likely Indirect Negative** |
| Liquefied Natural Gas (LNG) terminals (within 3 years) | | **Uncertain – Likely Indirect Negative** | |
| Convening Gear Take Reduction Teams (within 3 years) | | | **Indirect Positive** |
| Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 3 years) | | | **Indirect Positive** |
| **Summary of past, present, and future actions excluding those proposed in this specifications document** | **Overall, actions have had, or will have, positive impacts on protected resources**<br>*** See section 7.5.5.4 for explanation.** | | |

#### 7.5.5.5 Human Communities

Those past, present, and reasonably foreseeable future actions, whose effects may impact human communities and the direction of those potential impacts, are summarized in Table 23. The indirectly negative actions described in Table 23 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on human communities is expected to be limited in scope. It may, however, displace fishermen from project areas. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude. This may result in indirect negative impacts on human communities by reducing resource availability; however, this effect is unquantifiable. As described above (section 7.5.4), NMFS has several means under which it can review non-fishing actions of other federal or state agencies prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on human communities.

Past fishery management actions taken through the FMP and annual specification process have had both positive and negative cumulative effects by benefiting domestic fisheries through sustainable fishery management practices, while at the same time potentially reducing the availability of the resource to all participants. Sustainable management practices are, however, expected to yield broad positive impacts to fishermen, their communities, businesses, and the nation as a whole. It is anticipated that the future management actions, described in Table 28, will result in positive effects for human communities due to sustainable management practices, although additional indirect negative effects on the human communities could occur through management actions that may implement gear requirements or area closures and thus, reduce revenues. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to human communities have had an overall positive cumulative effect.

Commercial quotas and trip limits for the managed resource have been specified to ensure the stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The impacts from annual specification measures established in previous years on the managed resources are largely dependent on how effective those measures were in meeting their intended objectives and the extent to which mitigating measures were effective. Overages may alter the timing of commercial fishery revenues (revenues realized a year earlier), and there may be impacts on some fishermen caused by unexpected reductions in their opportunities to earn revenues in the commercial fisheries in the year during which the overages are deducted.

Despite the potential for neutral to positive short-term effects on human communities, the expectation is that there would be a positive long-term effect on human communities due to the long-term sustainability of spiny dogfish. Overall, the proposed actions in this document would not change the past and anticipated cumulative effects on human communities and thus, would not have any significant effect on human communities individually, or in conjunction with other anthropogenic activities (Table 28).

**Table 24. Summary of the effects of past, present, and reasonably foreseeable future actions on human communities.**

| Action | Past to the Present | | Reasonably Foreseeable Future |
|---|---|---|---|
| Original FMP and subsequent Amendments and Frameworks to the FMP | **Indirect Positive** | | |
| Spiny dogfish Specifications | **Indirect Positive** | | |
| Developed and Implement Standardized Bycatch Reporting Methodology | **Potentially Indirect Negative** | | |
| Amendment to address ACL/AMs implemented | | **Potentially Indirect Positive** | |
| Agricultural runoff | **Indirect Negative** | | |
| Port maintenance | **Uncertain – Likely Mixed** | | |
| Offshore disposal of dredged materials | **Indirect Negative** | | |
| Beach nourishment – Offshore mining | **Mixed** | | |
| Beach nourishment – Sand placement | **Positive** | | |
| Marine transportation | **Mixed** | | |
| Installation of pipelines, utility lines and cables | **Uncertain – Likely Mixed** | | |
| National Offshore Aquaculture Act of 2007 | **Uncertain – Likely Mixed** | | |
| Offshore Wind Energy Facilities (within 3 years) | | | **Uncertain – Likely Mixed** |
| Liquefied Natural Gas (LNG) terminals (within 3 years) | | **Uncertain – Likely Mixed** | |
| Convening Gear Take Reduction Teams (within 3 years) | | | **Indirect Negative** |
| Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 3 years) | | | **Indirect Negative** |
| **Summary of past, present, and future actions excluding those proposed in this specifications document** | **Overall, actions have had, or will have, positive impacts on human communities**<br>*** See section 7.5.5.5 for explanation.** | | |

### 7.5.6 Preferred Action on all the VECS

Under MSA, the Mid-Atlantic and New England Council had different alternative recommendations. Nevertheless, the FMP allows for disagreement between the Councils on annual management measures and provides that the Northeast Regional Administrator of NMFS may select any alternative that has not been rejected by both Councils. Under MSA and NEPA, NMFS selected Alternative 1b as its proposed action. The cumulative effects of the range of actions considered in this document can be considered to make a determination if significant cumulative effects are anticipated from the proposed action.

The direct and indirect impacts of the proposed action on the VECs are described in sections 7.1 through 7.4. The magnitude and significance of the cumulative effects, which include the additive and synergistic effects of the proposed action, as well as past, present, and future actions, have been taken into account throughout this section 7.5. The action proposed in this annual specifications document builds off action taken in the original FMP and subsequent amendments and framework documents. When this action is considered in conjunction with all the other pressures placed on fisheries by past, present, and reasonably foreseeable future actions, it is not expected to result in any significant impacts, positive or negative. Based on the information and analyses presented in these past FMP documents and this document, there are no significant cumulative effects associated with the action proposed in this document (Table 29).

**Table 25. Magnitude and significance of the cumulative effects; the additive and synergistic effects of the preferred action, as well as past, present, and future actions.**

| VEC | Status in 2011 | Net Impact of P, Pr, and RFF Actions | Impact of the Proposed Action | Significant Cumulative Effects |
|---|---|---|---|---|
| **Managed Resource** | Complex and variable (Section 6.1) | Positive (Sections 7.5.4 and 7.5.5.1) | Neutral to positive (Sections 7.1) | **None** |
| **Non-target Species** | Complex and variable (Section 6.1) | Positive (Sections 7.5.4 and 7.5.5.2) | Slight negative to slight positive (Sections 7.1) | **None** |
| **Habitat** | Complex and variable (Section 6.2) | Neutral to positive (Sections 7.5.4 and 7.5.5.3) | Slight negative to slight positive (Sections 7.2) | **None** |
| **Protected Resources** | Complex and variable (Section 6.3) | Positive (Sections 7.5.4 and 7.5.5.4) | Slight negative to slight positive (Sections 7.3) | **None** |
| **Human Communities** | Complex and variable (Section 6.4) | Positive (Sections 7.5.4 and 7.5.5.5) | Negative (highly uncertain) to short-term Positive (Sections 7.4) | **None** |

# 8.0 APPLICABLE LAWS

## 8.1 National Environmental Policy Act of 1969 (NEPA)

### 8.1.1 Finding of No Significant Environmental Impact (FONSI)

National Oceanic and Atmospheric Administration Administrative Order (NAO) 216-6 (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 C.F.R. 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

*1) Can the proposed action reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?*

The proposed action is intended to prevent overfishing and maintain spiny dogfish biomass above the biomass target. This action is not expected to jeopardize the sustainability of any target species that may be affected by the action. As discussed in Section 6.1.2, the spiny dogfish stock is rebuilt, is not overfished, and overfishing is not occurring.

*2) Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?*

The proposed action is not expected to jeopardize the sustainability of any non-target species. The proposed measure is not expected to significantly alter fishing methods or activities. There is limited directed fishing for spiny dogfish using gear that incidentally catches other species. The proposed action should not significantly increase directed dogfish fishing in the EEZ. As such, the incidental catch of non-target species should not increase significantly.

*3) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs?*

The proposed action is not expected to cause substantial damage to the ocean, coastal habitats, and/or EFH as defined under the MSA and identified in the FMP. There has been an overall decline in bottom trawling activity for groundfish in the Northeast region in recent years and management measures (closed areas) are in place for minimizing the adverse habitat impacts of bottom trawling and dredging. Therefore, fishing activity in the limited spiny dogfish trawl fishery is not expected to increase existing levels of minimal adverse impacts to EFH and do not require any mitigation.

*4) Can the proposed action be reasonably expected to have a substantial adverse impact on public health or safety?*

No changes in fishing behavior that would affect safety are anticipated. The overall effect of the proposed action would not adversely impact public health or safety.

*5) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?*

The proposed action is not reasonably expected to have an adverse impact on endangered or threatened species, marine mammals, or critical habitat for these species. While there may be some adverse impacts by maintaining fishing effort through the proposed action, that impact is not expected to be significant. Because the abundance of dogfish has increased greatly, effort is unlikely to increase significantly. In addition, measures in place to protect endangered or threatened species, marine mammals, and critical habitat for these species would remain in place.

For the reasons described in Section 7.4, NMFS has determined that the continued operation of the Spiny Dogfish FMP during the reinitiation period is not likely to jeopardize the continued existence of any Atlantic sturgeon DPS. This is based on the short time period encompassed by the reinitiation period and consequently, the scale of any interactions with Atlantic sturgeon that may occur during this period. NMFS will implement any appropriate measures outlined in the BO to mitigate harm to Atlantic sturgeon. Further, the encounter rates and mortalities for Atlantic sturgeon that have been calculated as part of the preliminary analysis of NEFOP data include encounters and mortalities by all fisheries utilizing sink gillnet and otter trawl gear, including the groundfish, monkfish, bluefish, skate, and other fisheries. Based upon the above estimates, the rates of encounters and mortalities by the spiny dogfish fishery are lower than the estimates in most of those fisheries. Finally, this EA evaluates a temporary action, one that is only in place for FY 2012. Therefore, impacts resulting from the approval of the spiny dogfish fishery specifications are not likely to be significant.

*6) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?*

The proposed action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. The action is not expected to significantly alter fishing methods or activities or fishing effort or the spatial and/or temporal distribution of current fishing effort.

*7) Are significant social or economic impacts interrelated with natural or physical environmental effects?*

The proposed action is not expected to have a substantial impact on the natural or physical environment. The proposed action is not expected to significantly alter fishing methods or activities, fishing effort or the spatial and/or temporal distribution of current

fishing effort. Therefore, there are no social or economic impacts interrelated with natural or physical environmental effects.

*8) Are the effects on the quality of the human environment likely to be highly controversial?*

The impacts of the proposed measures on the human environment are described in Section7 of the EA. The proposed actions merely revise the annual quota and trip limit for the 2012 dogfish fishery. The proposed action is based upon measures contained in the FMP which have been in place for years. In addition, the scientific information upon which the annual Quotas are based has been peer-reviewed and is the most recent information avai lable. Therefore, the measures contained in this action are not expected to be highly controversial.

*9) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?*

This action addresses the commercial quota and trip limit for spiny dogfish. This fishery is not known to be prosecuted in any unique areas such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas. Therefore, the proposed action is not expected to have a substantial impact on any of these areas.

*10) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?*

The impacts of the proposed action on the human environment are described in Section 7.0 of the EA. The proposed action addresses the commercial quota and trip limit for the spiny dogfish fishery. The proposed action is not expected to significantly alter fishing methods or activities, and is not expected to significantly increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The measures contained in this action are not expected to have highly uncertain, unique, or unknown risks on the human environment.

*11) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?*

As discussed in Section 7.5, the proposed action is not expected to have cumulatively significant impacts when considered with the impacts from other fishing and non-fishing activities. The improvements in the condition of the stock are expected to generate cumulative positive impacts overall. The proposed action, together with past and future actions are not expected to result in significant cumulative impacts on the biological, physical, and human components of the environment.

*12) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?*

The dogfish fishery would take place on ocean waters and would not affect any human communities on the adjacent shorelines. There are no known districts, sites, or highways in the area of the proposed action. The proposed action is not likely to affect objects listed in the National Register of Historic Places or cause significant impact to scientific, cultural, or historical resources. Several shipwrecks located within the Stellwagen Bank National Marine Sanctuary are listed on the National Register of Historic Places. The current regulations allow fishing within the Stellwagen Bank National Marine Sanctuary. However, vessels typically avoid fishing near the wrecks to avoid tangling their gear. Therefore, this action would not result in any adverse effects to these wrecks. Due to the minimal impact on the human environment, the proposed action would not adversely affect scientific, cultural, or historical resources.

*13) Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?*

The proposed action addresses the commercial quota and trip limit for the spiny dogfish fishery. There is no evidence or indication that this fishery has ever resulted in the introduction or spread of nonindigenous species. The proposed action is not expected to significantly alter fishing methods or activities, and is not expected to significantly increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, it is highly unlikely that the proposed action would be expected to result in the introduction or spread of a non-indigenous species.

*14) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?*

The proposed action addresses the commercial quota and trip limit for the spiny dogfish fishery. The proposed action is not expected to significantly alter fishing methods or activities, and is not expected to significantly increase fishing effort or the spatial and/or temporal distribution of current fishing effort. When new stock assessment or other biological information about these species becomes available in the future, then the specifications may be adjusted according to the FMP. The proposed action will not result in significant effects, nor does it represent a decision in principle about a future consideration.

*15) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?*

The proposed action addresses the commercial quota and trip limit for the spiny dogfish fishery. The proposed action is not expected to alter fishing methods or activities such that they threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. The proposed action has been found to be consistent with other applicable laws (see Sections 9.2 - 9.10 below).

*16) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?*

The impacts of the proposed action on the biological, physical, and human environment are described in Section 7.0. The cumulative effects of the proposed action on target and non-target species are detailed in Section 7.6. The proposed action is not expected to significantly increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The improvements in the condition of the stock through implementation of quotas based on the fishing mortality target contained in the FMP are expected to generate positive impacts overall.

**DETERMINATION**

In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment, it is hereby determined that the proposed actions in this specification package will not significantly impact the quality of the human environment as described above and in the Environmental Assessment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.

Daniel S. Morris
Acting Regional Administrator, Northeast Region
NMFS

5/3/11
Date

## 8.2 Marine Mammal Protection Act

The MAFMC has reviewed the impacts of the proposed spiny dogfish specifications on marine mammals and has concluded that the proposed management actions are consistent with the provisions of the MMPA, and will not alter existing measures to protect the species likely to inhabit the spiny dogfish management unit. For further information on the potential impacts of the fishery and the proposed management action on marine mammals, see Section 7.4 of this document.

## 8.3 Endangered Species Act

Section 7 of the Endangered Species Act requires federal agencies conducting, authorizing, or funding activities that affect threatened or endangered species to ensure that those effects do not jeopardize the continued existence of listed species. The MAFMC has concluded, using information available, that the proposed spiny dogfish specifications are not likely to jeopardize any ESA-listed species or alter or modify any critical habitat, based on the discussion of impacts in this document (Section 7.4).

## 8.4 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) of 1972, as amended, provides measures for ensuring stability of productive fishery habitat while striving to balance development pressures with social, economic, cultural, and other impacts on the coastal zone. It is recognized that responsible management of both coastal zones and fish stocks must involve mutually supportive goals. The Council has developed this specifications document and will submit it to NMFS; NMFS must determine whether this action is

consistent to the maximum extent practicable with the CZM programs for each state (Maine through North Carolina).

## 8.5 Administrative Procedures Act

Sections 551-553 of the Federal Administrative Procedure Act establish procedural requirements applicable to informal rulemaking by federal agencies. The purpose is to ensure public access to the federal rulemaking process and to give the public notice and an opportunity to comment before the agency promulgates new regulations.

The Administrative Procedure Act requires solicitation and review of public comments on actions taken in the development of a fishery management plan and subsequent amendments and framework adjustments. Development of this specifications document provided many opportunities for public review, input, and access to the rulemaking process. This proposed specifications document was developed as a result of a multi-stage process that involved review of the source document (2012 Specifications and Management Measures) by affected members of the public. The public had the opportunity to review and comment on management measures during a meeting of the Council's Scientific and Statistical Committee on September 21, 2011, a Spiny Dogfish MC Meeting on September 23, 2010, a Joint Spiny Dogfish Committee meeting held on October 12, 2010, a MAFMC meeting held October 12, 2010, and an NEFMC meeting held on November 17, 2010. In addition, the public will have further opportunity to comment on this specifications package once NMFS publishes a proposed rule in the Federal Register (FR) requesting comments.

## 8.6 Information Quality Act

***Utility of Information Product***

The proposed document includes: A description of the proposed specifications, description of the alternatives considered, and the reasons for selecting the proposed management measures. This action proposes commercial quotas and other management measures for spiny dogfish in 2011. This proposed specifications document implements the FMP's conservation and management goals consistent with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) as well as all other existing applicable laws.

This proposed specifications document was developed as a result of a multi-stage process that involved review of the source document (2011 Specifications and Management Measures) by affected members of the public. The public had the opportunity to review and comment on management measures during a meeting of the Council's Scientific and Statistical Committee on September 21, 2011, a Spiny Dogfish MC Meeting on September 23, 2010, a Joint Spiny Dogfish Committee meeting held on October 12, 2010, a MAFMC meeting held October 12, 2010, and an NEFMC meeting held on November 17, 2010.

The Federal Register notice that announces the proposed rule and the implementing regulations will be made available in printed publication and on the website for the

Northeast Regional Office. The notice provides metric conversions for all measurements.

***Integrity of Information Product***

The information product meets the standards for integrity under the following types of documents:

Other/Discussion (e.g., Confidentiality of Statistics of the Magnuson-Stevens Fishery Conservation and Management Act; NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the Marine Mammal Protection Act.)

***Objectivity of Information Product***

The category of information product that applies for this product is "Natural Resource Plans."

In preparing specifications documents, the Council must comply with the requirements of the Magnuson-Stevens Act, the National Environmental Policy Act, the Regulatory Flexibility Act, the Administrative Procedure Act, the Paperwork Reduction Act, the Coastal Zone Management Act, the Endangered Species Act, the Marine Mammal Protection Act, the Data Quality Act, and Executive Orders 12630 (Property Rights), 12866 (Regulatory Planning), 13132 (Federalism), and 13158 (Marine Protected Areas).

This specifications document has been developed to comply with all applicable National Standards, including National Standard 2. National Standard 2 states that the FMP's conservation and management measures shall be based upon the best scientific information available. Despite current data limitations, the conservation and management measures proposed to be implemented under this specifications document are based upon the best scientific information available. This information includes NMFS commercial fisheries data for fishing year 2010, which was used to characterize the economic impacts of the management proposals. These data, as well as the NMFS Observer program database, were used to characterize historic landings, species co-occurrence in the spiny dogfish catch, and discarding. The specialists who worked with these data are familiar with the most recent analytical techniques and with the available data and information relevant to the spiny dogfish fishery. Marine Recreational Fisheries Statistical Survey (MRFSS) data were used to characterize the recreational fishery for this species.

The policy choices (i.e., management measures) proposed to be implemented by this specifications document are supported by the available scientific information and, in cases where information was unavailable, proxy reference points are based on observed trends in survey data. The management measures contained in the specifications document are designed to meet the conservation goals and objectives of the FMP, and prevent overfishing and rebuild overfished resources, while maintaining sustainable levels of fishing effort to ensure a minimal impact on fishing communities.

The supporting materials and analyses used to develop the measures in the proposed rule are contained in the specifications document and to some degree in previous specifications and/or FMPs as specified in this document.

The review process for this specifications package involves the Mid-Atlantic Fishery Management Council, the Northeast Fisheries Science Center, the Northeast Regional Office, and NOAA Fisheries headquarters. The Center's technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, demersal resources, population biology, and the social sciences. The Council review process involves public meetings at which affected stakeholders have opportunity to provide comments on the specifications document. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the specifications document and clearance of the rule is conducted by staff at NOAA Fisheries Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

## 8.7 Paperwork Reduction Act

The Paperwork Reduction Act (PRA) concerns the collection of information. The intent of the PRA is to minimize the federal paperwork burden for individuals, small businesses, state and local governments, and other persons as well as to maximize the usefulness of information collected by the federal government. There are no changes to the existing reporting requirements previously approved under this FMP for vessel permits, dealer reporting, or vessel logbooks. This action does not contain a collection-of-information requirement for purposes of the Paperwork Reduction Act.

## 8.8 Impacts Relative to Federalism/E.O. 13132

This specifications document does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under Executive Order (EO) 13132.

## 8.9 Regulatory Flexibility Act/E.O. 12866

### 8.9.1 Regulatory Impact Review (RIR) and Initial Regulatory Flexibility Analysis (IRFA)

This section provides the analysis and conclusions to address the requirements of Executive Order 12866 and the Regulatory Flexibility Act (RFA). Since many of the requirements of these mandates duplicate those required under the MSA and NEPA, this section contains references to other sections of this document. The following sections provide the basis for concluding that the proposed action is not significant under E.O. 12866 and will not have a significant economic impact on a substantial number of small entities under the RFA.

### 8.9.2 Description of Management Objectives

The goals and objectives of the management plan for the spiny dogfish resource are stated in Section 1.1.3 of the Spiny Dogfish FMP. The proposed action is consistent with, and does not modify those goals and objectives.

### 8.9.3 Description of the Fishery

Section 2.3 of the Spiny Dogfish FMP contains a detailed description of the historic spiny dogfish fishery. Updated fishery activity is given in Section 6.5 of this document.

### 8.9.4 Statement of the Problem

The purpose and need for this action is identified in Section 4.1 of this document. The Spiny Dogfish FMP requires that the Councils and the Regional Administrator review the best available stock and fishery data when developing specifications for the upcoming fishing year(s).

### 8.9.5 Description of the Alternatives

**Alternative 1a – (Mid-Atlantic Council Recommendation – Set Quota at 35.694 M lb and Trip Limit at 4,000 lb)**
For FY2012, specify a commercial quota of 35.694 M lb with trip limits of 4,000 lb (vessels are prohibited from landing more than the specified amount in one calendar day). As per the FMP, the quota would be divided with quota Period 1 (May 1 through October 31) allocated 57.9% of the quota (20.667 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (15.027 M lb).

**Alternative 1b – (New England Council Recommendation – Set Quota at 35.694 M lb and Trip Limit at 3,000 lb)**
For FY2012, specify a commercial quota of 35.694 M lb with trip limits of 3,000 lb (vessels are prohibited from landing more than the specified amount in one calendar day). As per the FMP, the quota would be divided with quota Period 1 (May 1 through October 31) allocated 57.9% of the quota (20.667 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (15.027 M lb).

**Alternative 2 – (Consistent with ASMFC – Set Quota at 30.000 M lb and Trip Limit at 3,000 lb)**
For FY2012, specify a commercial quota of 30.000 M lb with trip limits of 3,000 lb (vessels are prohibited from landing more than the specified amount in one calendar day). As per the FMP, the quota would be divided with quota Period 1 (May 1 through October 31) allocated 57.9% of the quota (17.370 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (12.630 M lb).

**Alternative 3 – (Status Quo / No Action - Set quota at 20.000 M lb and Trip Limits at 3,000 lb)**
For FY2012, specify a commercial quota of 20.000 M lb with a trip limit of 3,000 lb (vessels are prohibited from landing more than the specified amount in one calendar day).

As per the FMP, the quota would be divided with quota Period 1 (May 1 through October 31) allocated 57.9% of the quota (11.580 M lb), and quota Period 2 (November 1 through April 30) allocated 42.1% of the quota (8.420 M lb).

### 8.9.6 Economic Analysis

The economic impacts of the proposed actions are discussed in Section 7.0 of this document. Higher quotas and constant or increased trip limits (Alternatives 1a/1b, 2 and 3) are expected to result in positive economic impacts by increasing or maintaining revenue from the dogfish fishery. In general, no significant economic impacts are expected because the alternatives are consistent with the goals of the FMP and are unlikely to result in significant deviation (negatively) from the status quo.

### 8.9.7 Determination of Significance under E.O. 12866

NMFS Guidelines provide criteria to be used to evaluate whether a proposed action is significant. A significant regulatory action means any regulatory action that is likely to result in a rule that may:

1. *Have an annual effect on the economy of $100 million or more, or adversely effect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local or tribal governments or communities.*

The proposed action will not have an effect on the economy in excess of $100 million. The proposed action is not expected to have any adverse impacts on the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local or tribal governments or communities.

2. *Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency.*

The proposed action will not create a serious inconsistency with, or otherwise interfere with, an action taken or planned by another agency. No other agency has indicated that it plans an action that will affect the spiny dogfish fishery in the EEZ.

3. *Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof.*

The proposed action will not materially alter the budgetary impact of entitlements, grants, user fees or loan programs, or the rights and obligations of their participants.

4. *Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.*

The proposed action does not raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in E.O. 12866.

### 8.9.8 Initial Regulatory Flexibility Analysis

The following sections contain analyses of the effect of the proposed action on small entities. Under Section 603(b) of the RFA, each initial regulatory flexibility analysis is required to address:

1. Reasons why the agency is considering the action,
2. The objectives and legal basis for the proposed rule,
3. The kind and number of small entities to which the proposed rule will apply,
4. The projected reporting, record-keeping and other compliance requirements of the proposed rule, and
5. All federal rules that may duplicate, overlap, or conflict with the proposed rule.

### 8.9.9 Reasons for Considering the Action

The purpose and need for this action is identified in Section 4.1 of this document. The Spiny Dogfish FMP requires that the Council and the Regional Administrator annually review the best available stock and fishery data when developing specifications for the upcoming fishing year.

### 8.9.10 Objectives and Legal Basis for the Action

The objective of the proposed action is to implement specifications for the spiny dogfish fishery, as required under the regulations implementing the Spiny Dogfish FMP, which are provided in 50 CFR 648, Subpart L.

### 8.9.11 Description and Number of Small Entities to Which the Rule Applies

All of the potentially affected businesses are considered small entities under the standards described in NOAA Fisheries guidelines because they have gross receipts that do not exceed $3.5 million annually. A discussion of vessel activity during the 2010 fishing year is given in Section 6.5.1 of this document.

### 8.9.12 Recordkeeping and Reporting Requirements

The proposed action does not introduce any new reporting, recordkeeping, or other compliance requirements.

### 8.9.13 Duplication, Overlap, or Conflict with Other Federal Rules

The proposed action does not duplicate, overlap or conflict with any other federal rules.

### 8.9.14 Economic Impacts on Small Entities

Section 7.0 of this document contains the economic analysis of the alternatives that were considered during the specification process.

## 10.0 LITERATURE CITED


ASMFC. 2007. Estimation of Atlantic Sturgeon Bycatch in Coastal Atlantic Commercial Fisheries of New England and the Mid-Atlantic. Special Report to the ASMFC Atlantic Sturgeon Management Board.

ASSRT. 2007. Status Review of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus)*. Prepared by the Atlantic Sturgeon Status Review Team for the National Marine Fisheries Service, National Oceanic and Atmospheric Administration. February 23, 2007.

Beanlands, G.E., and P. N. Duinker. 1984. Ecological framework adjustment for environmental impact assessment. Journal of Environmental Management. 8:3

Dadswell, M. 2006. A review of the status of Atlantic sturgeon in Canada, with comparisons to populations in the United States and Europe. Fisheries 31:218-229.

Dovel, W. L., and T. J. Berggren. 1983. Atlantic sturgeon of the Hudson estuary, New York. New York Fish and Game Journal 30:140–172.

Dunton, K.J., A. Jordaan, K.A. McKown, D.O. Conover, and M.G. Frisk. 2010. Abundance and distribution of Atlantic sturgeon (*Acipenser oxyrinchus*) within the Northwest Atlantic Ocean determined from five fishery-independent surveys. Fish. Bull. 108:450-465.

Holland, B. F., Jr., and G. F. Yelverton. 1973. Distribution and biological studies of anadromous fishes offshore North Carolina. N.C. Dep. Nat. Econ. Res. Spec. Sci. Rep. 24. 132 pp.

Kynard, B., and M. Horgan. 2002a. Ontogenetic behavior and migration of Atlantic sturgeon, Acipenser oxyrinchus oxyrinchus, and shortnose sturgeon, A. brevirostrum, with notes on social behavior. Environmental Biology of Fishes 63:137–150.

Laney, R.W., J.E. Hightower, B.R. Versak, M.F. Mangold, W.W. Cole Jr., and S.E. Winslow. 2007. Distribution, habitat use, and size of Atlantic sturgeon captured during cooperative winter tagging cruises, 1988-2006. In Anadromous sturgeons: habitats, threats, and management (J. Munro, D. Hatin, J.E. Hightower, K. McKown, K.J. Sulak, A.W. Kahnle, and F. Caron (eds.)), p. 167-182. Am. Fish. Soc. Symp. 56, Bethesda, MD.

Laney, R.W. 1997. The relationship of submerged aquatic vegetation (SAV) ecological value to species managed by the Atlantic States Marine Fisheries Commission (ASMFC): summary for the ASMFC SAV Subcommittee. pp. 11-35 *in* C.D. Stephan and T.E. Bigford, eds. Atlantic Coastal Submerged Aquatic Vegetation: a review of its ecological role, anthropogenic impacts, state regulation, and value to Atlantic coastal fish stocks.

Atlantic States Marine Fisheries Commission, Washington, D.C. Habitat Management Series #1.

MAFMC. 2011. Amendment 2 to the Spiny Dogfish Fishery Management Plan (Omnibus ACL/AM Amendment). Dover, DE. 552 p. + append.

_____ 1999. Spiny Dogfish Fishery Management Plan (includes Final Environmental Impact Statement and Regulatory Impact Review).

NMFS. 1998. Endangered Species Act Section 7 consultation, biological opinion and conference. Consultation in accordance with Section 7(a) of the Endangered Species Act Regarding the Federal Monkfish Fishery. National Marine Fisheries Service, Northeast Regional Office, Gloucester, MA. December 21, 1998.

NEFSC 2011. Update on the Status of Spiny Dogfish in 2011 and Initial Evaluation of Alternative Harvest Strategies. 44 p. Unpubl. Report.

_____ . 2002. Workshop on the effects of fishing gear on marine habitats off the northeastern United States, October 23-25, 2001, Boston, Massachusetts. U.S. Natl. Mar. Fish. Serv. Northeast Fish. Cent. Woods Hole Lab. Ref. Doc. 02-01. 86 p.

_____. 1998. Report of the 26th Northeast Regional Stock Assessment Workshop: Stock Assessment Review Committee Consensus Summary of Assessments. NEFSC Ref. Doc. 98-03.

Stein, A. B., K. D. Friedland, and M. Sutherland. 2004. Atlantic sturgeon marine bycatch and mortality on the continental shelf of the Northeast United States. North American Journal of Fisheries Management 24: 171-183.

Stevenson, D.K., L.A. Chiarella, C.D. Stephan, R.N. Reid, K. Wilhelm, J.E. McCarthy and M. Pentony. 2004. Characterization of the fishing practices and marine benthic ecosystems of the Northeast U.S. shelf, and an evaluation of the potential effects of fishing on essential fish habitat. NOAA Technical Memorandum NMFS-NE-181, 179 p.

## 11.0 LIST OF AGENCIES AND PERSONS CONSULTED

This document was prepared by the Mid-Atlantic Fishery Management Council in consultation with the National Marine Fisheries Service and the New England Fishery Management Council.

Additional (final) copies of this EA can be obtained via the NMFS NERO website:
http://www.nero.noaa.gov/nero/regs/com2011.html
or by request from
James L. Armstrong
Suite 201
800 N. State ST.
Dover, DE 19901

Members of the Spiny Dogfish Monitoring Committee include:

James Armstrong, MAFMC Staff (Monitoring Committee Chair)
Angel Willey, Maryland DNR
Tobey Curtis, NMFS NERO
Clark Gray, North Carolina Division of Marine Fisheries
Phil Haring, New England Fishery Management Council
Dan McKiernan, Massachusetts Division of Marine Fisheries
Jack Musick, Virginia Institute of Marine Sciences
Paul Rago, NEFSC Population Dynamics Branch
Eric Schneider, Rhode Island Division of Fish and Wildlife
Chris Hickman, North Carolina ex-officio industry advisor
Eric Brazer, Massachusetts ex-officio industry advisor

Members of the Joint Spiny Dogfish Committee include:

Red Munden (Chair) MAFMC
Erling Berg MAFMC
Pete Himchak MAFMC
Mike Luisi MAFMC
Preston Pate MAFMC
Jack Travelstead MAFMC
Frank Blount NEFMC
David Pierce NEFMC

In addition, the following organizations/agencies were consulted during the development of the spiny dogfish specifications, either through direct communication/correspondence and/or participation in Council public meetings:

NOAA Fisheries, National Marine Fisheries Service, Northeast Regional Office, Gloucester MA
Northeast Fisheries Science Center, Woods Hole, MA
Atlantic States Marine Fisheries Commission

## APPENDIX 1

Relevant Port and Community Descriptions

(The contents of this appendix are taken from the NEFSC's "Community Profiles for the Northeast US Fisheries" for Virginia Beach/Lynnhaven, VA; Hatteras, NC; Rye, NH; Chatham, MA; Ocean City, MD for which spiny dogfish comprised greater than 1% of total port ex-vessel revenue according to the federal dealer report database. They are also available on the internet at:
http://www.nefsc.noaa.gov/read/socialsci/community_profiles/ )


| **Port** | **Page** |
|---|---|
| Virginia Beach/Lynnhaven, VA | 58 |
| Hatteras, NC | 68 |
| Rye, NH | 79 |
| Chatham, MA | 89 |
| Ocean City, MD | 99 |