DRAFT

DISCUSSION DOCUMENT

Amendment 18

to the

Northeast Multispecies Fishery Management Plan

Updated November 5, 2014

For consideration by the Council on

November 17-20, 2014

Prepared by the

New England Fishery Management Council

in cooperation with the

National Marine Fisheries Service

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1.0 PRELIMINARY NOTE

This Discussion Document encapsulates the work of the Council to date on Amendment 18 to the Northeast Multispecies FMP, an amendment that considers measures related to fleet diversity and accumulation limits in the fishery. Though the Council has been discussing the concepts considered in Amendment 18 for some time, the Groundfish Committee (Committee) has been specifically working to develop this action for the past 18 months. The foci of this Discussion Document are the Alternatives Under Consideration (Section 4.0), the Alternatives Considered but Rejected (Section 5.0), and the description of the fishery-related businesses and communities in the Affected Environment (Section 6.5). In November 2014, the Council will be considering the alternatives as developed so far and is scheduled to approve the Range of Alternatives for consideration in the Draft Environmental Impact Statement (DEIS).

This document does not contain discussion of potential impacts of the alternatives on the Valued Ecosystem Components (VECs) of the fishery. This analysis will be prepared for and included in the DEIS. However, through the development of alternatives, the Committee has considered many potential implications of a wide range of ideas, considering input from the Groundfish Plan Development Team, the Groundfish Advisory Panel, and the public. While some of the potential implications are captured in the rationale for the measures contained herein, the reader would be more fully informed by reviewing the Committee meeting summaries and PDT memos on Amendment 18. A list of public meetings is provided in Table 60, and copies of documents are available at the Council's website (www.nefmc.org).

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2.5 LIST OF ACRONYMNS

ABC	Acceptable Biological Catch
ACE	Annual Catch Entitlement
ACL	Annual Catch Limit
ALWTRP	Atlantic Large Whale Take Reduction Plan
AM	Accountability Measure
ASPD	Analysis and Program Support Division
ASSRT	Atlantic Sturgeon Status Review Team
BOF	Bay of Fundy
CA	Closed Area
CAM	Closed Area Model
CPH	Confirmation of Permit History
CPUE	Catch Per Unit Effort
DAM	Dynamic Area Management
DAS	Days-At-Sea
DPS	Distinct Population Segment
EGB	Eastern Georges Bank
EIS	Environmental Impact Statement
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FMP	Fishery Management Plan
FY	Fishing Year
GAP	Groundfish Advisory Panel
GARFO	Greater Atlantic Regional Fisheries Office
GB	Georges Bank
GOM	Gulf of Maine
HA	Handgear A
HHI	Herfindahl-Hirschman Index
HPTRP	Harbor Porpoise Take Reduction Plan
LAPP	Limited Access Privilege Program
MMPA	Marine Mammal Protection Act
MRI	Moratorium Right Identifier
MSA	Magnuson-Stevens Act
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Reauthorization Act
NEFMC	New England Fishery Management Council
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
OY	Optimum Yield
PBR	Potential Biological Removal
PSC	Potential Sector Contribution
RA	Regional Administrator
RPA	Reasonable and Prudent Alternative
SAM	Seasonal Area Management

SAP	Special Access Program
SFA	Sustainable Fisheries Act
SNE/MA	Southern New England/Mid-Atlantic Bight
SRA	Statistical Reporting Area
SSC	Science and Statistical Committee
SST	Sea Surface Temperature
TAC	Total Allowable Catch
TMGC	Transboundary Management Guidance Committee
USCG	United States Coast Guard
VTR	Vessel Trip Report

3.0 INTRODUCTION

3.1 CONTEXT OF EXISTING MANAGEMENT SYSTEM

This section describes the existing management program to contextualize the changes proposed in this action and aid in describing the No Action alternatives as required by the National Environmental Policy Act (NEPA). More detail on these actions can be found at http://www.nefmc.org.

3.1.1 History of the Northeast Multispecies FMP

Today, 13 species are managed under the Northeast Multispecies Fishery Management Plan (FMP) as large mesh species, based on fish size and type of gear used to harvest the fish: American plaice, Atlantic cod, Atlantic halibut, Atlantic wolffish, haddock, pollock, redfish, ocean pout, yellowtail flounder, white hake, windowpane flounder, winter flounder, and witch flounder. Three species — offshore hake, red hake, and silver hake (whiting) — are managed under a separate small mesh multispecies program (per Amendment 12). Several large mesh species are managed as two or more stocks based on geographic region.

Groundfish stocks have been managed under the Magnuson-Stevens Act (MSA) beginning with the adoption of a groundfish plan for cod, haddock, and yellowtail flounder in 1977. This plan first relied on hard quotas (total allowable catches, or TACs) and proved unworkable. The quota system was rejected in 1982 with the adoption of the Interim Groundfish Plan, which controlled fishing mortality with minimum fish sizes and codend mesh regulations for the Gulf of Maine and Georges Bank. This plan was replaced with the Northeast Multispecies FMP in 1986, which continued to control fishing mortality with gear restrictions and minimum mesh size, but established biological targets to achieve maximum spawning potential.

3.1.1.1 Amendment 5

Amendment 5 was a major revision to the FMP. Adopted in 1994, it established a Days-at-Sea (DAS) program that reduced fishing effort for some fleet components and adopted year-round closures to control mortality. It also established a moratorium on groundfish permits. Amendment 5 contains a detailed history of the FMP up to 1994 (NEFMC 1993).

3.1.1.2 Sustainable Fisheries Act

Despite the effort reductions taken through Amendment 5, the Sustainable Fisheries Act (SFA), amended the MSA in 1996 to set the standards for effective management higher. The SFA placed new demands on FMPs to reduce bycatch, identify and protect Essential Fish Habitat (EFH), and minimize adverse effects of fishing on EFH to the extent practicable. It also created National Standards that emphasized minimizing impacts to fishing communities, improving safety at sea, significantly reducing bycatch, and improving the collection and use of fishery and biological data (SFA 1996).

3.1.1.3 Amendment 7

Implemented in 1996, Amendment 7 accelerated the DAS effort reduction program by eliminating significant exemptions from the effort control program. It incentivized fishing exclusively with mesh larger than the minimum required, broadened the area closures to protect juvenile and spawning fish, and increased the haddock possession limit to 1,000 lbs. It

established a rebuilding program for Georges Bank (GB) and Southern New England (SNE) yellowtail flounder, GB and Gulf of Maine (GOM) cod, and GB haddock based primarily on DAS controls, area closures, and minimum mesh size. Additionally, permit categories were changed or created, including an open access multispecies permit for limited access sea scallop vessels. A program was created for reviewing management measures annually and changing regulations through a framework adjustment process to ensure that plan goals would be met (NEFMC 1997). Of all changes to the FMP prior to 2000, Amendments 5 and 7 had the greatest impact on the fishery, both for stock rebuilding and shaping the socioeconomic conditions of the industry and fishing communities.

3.1.1.4 Amendment 9

Adopted in 1999, Amendment 9 had a significant impact on the fishery, establishing new status determination criteria (overfishing definitions) and setting the Optimum Yield (OY) for twelve groundfish species to bring the plan into complete compliance with the SFA.

3.1.1.5 Amendments 11 and Essential Fish Habitat

Amendment 11 adopted Essential Fish Habitat provisions for New England groundfish stocks in 1999 to comply with the SFA. According to a 2000 ruling of the U.S. District Court for the District of Columbia however, EFH considerations were determined to be inadequate. The prosecution contested the adequacy of evaluations of fishing gear impacts on EFH and challenged NMFS approval of FMPs which did not fully address the impacts of fishing on habitat. The Court found that the agency's decisions on EFH amendments were in accordance with the MSA, but determined that the Environmental Assessments (EAs) prepared for EFH amendments did not fully consider all relevant alternatives and thus violated NEPA. The Court specifically criticized several EAs for evaluating only two options for EFH measures (including No Action). The decision noted that the descriptions and analyses of the environmental impacts of the Proposed Actions and alternatives were vague or not fully explained. The Court ordered NMFS to complete a new and thorough NEPA analysis for each EFH amendment named in the suit (American Oceans Campaign et al. v. Daley et al. 2000).

3.1.1.6 Frameworks 27 to 39

In 1999, the NEFMC submitted Framework 27 as the primary annual adjustment framework. It also implemented the Inshore Roller Gear Restricted Area. Both Frameworks 27 and 30 contained trip limits for GOM and GB cod. In both cases, the Regional Administrator (RA) was authorized to reduce the trip limit when 75% of the target TAC for each stock is reached. On May 1, 1999, a GOM cod trip limit of 200 lbs per day was implemented, but on May 28, the RA reduced the trip limit to 30 lbs per day, just three weeks into the fishing year. Even before the trip limit was reduced, fishermen reported excessive discards of cod as seasonal closures ended. NMFS announced on July 29, 1999 that it disapproved the 30-day closure on GB proposed in Framework 30, but it approved the GB cod trip limit of 2,000 lbs per day and 20,000 lbs maximum possession limit.

The NEFMC submitted Framework 31 on October 14, 1999, which addressed discards in the GB and GOM cod fisheries. NMFS approved an increased GOM cod trip limit on January 5, 2000, but it disapproved a change to the GB cod trip limit program that would have eliminated the authority of the RA to make mid-season adjustments to the trip limit when 75% of the target TAC is reached.

Framework 33 was implemented on June 1, 2000 to reduce or maintain fishing mortality rates for the five critical stocks below Amendment 7 rebuilding targets. The framework implemented new seasonal closures, maintained or reduced trip limits, and mandated that party and charter vessels obtain a Letter of Authorization to fish in the GOM closed areas. The NEFMC also proposed changes to the large mesh permit category, but these were not approved by NMFS.

Framework 36 was completed in December 2001, but the NEFMC did not adopt it nor was it submitted. Frameworks 37 and 38 related to the whiting fishery.

Framework 39 was a joint action with the Scallop FMP and addressed scallop area management in Nantucket Lightship Area and Closed Areas (CA) I and II. These closures had been created to achieve groundfish rebuilding objectives and resulted in increased scallop biomass. The Framework allowed access to those scallop resources while minimizing bycatch of groundfish.

3.1.1.7 Amendment 13

Amendment 13 was developed over a four-year period (1999-2003) to meet SFA requirements, such as adopting rebuilding programs for stocks that were overfished and to end overfishing. In December 2001, during the drafting of the Amendment and immediately following the implementation of Framework 33, Conservation Law Foundation and other organizations successfully filed suit against NMFS alleging that the rebuilding plans NMFS had implemented were not consistent with Amendment 9 overfishing definitions. Additionally, they charged that there had been a consistent failure in management plans to assess bycatch reporting and establish measures to minimize bycatch and bycatch mortality (when bycatch is unavoidable). The plaintiffs prevailed on the issue that the rebuilding plans failed to implement a Standardized Bycatch Reporting Methodology (Conservation Law Foundation v. Evans 2001). After a long series of negotiations among various parties, interim measures were adopted by the court and NMFS was instructed to submit a FMP that complies with the law. Amendment 13, which went into effect on May 1, 2004, met the requirements for both this court order and the 2000 ruling on EFH.

The main purpose of Amendment 13 was to end overfishing on groundfish stocks and to rebuild all of the groundfish stocks that were overfished. The Amendment addressed overfishing definitions, stock rebuilding, reduced fishing effort and capacity in the fishery, included measures to minimize bycatch, instituted improved reporting and recordkeeping requirements, and implemented EFH protections. The Amendment also mandated a periodic review of stock data midway through the implementation period and called for corrective action if necessary.

During Amendment 13 development, the relationship between the multispecies fishing industry and the scientific community underwent some important changes. In September 2002, a Cape Cod fisherman convinced federal scientists that the trawl warps used to tow the groundfish survey gear used by the Northeast Fisheries Science Center (NEFSC) were of different lengths, a fact that was confirmed. A series of workshops then assessed how the warp length discrepancy and confounding structural problems with the otter trawl doors and footrope may have affected data quality. Issues surrounding the trawl warps, reference point estimates, and a trawl survey experiment were evaluated by Payne et al. (2003). They concluded that the data was suitable for management and recommended further investigation of the issues, with greater emphasis on collaborative research to improve communication and understanding among fishermen and scientists, and to collect more comprehensive data for management of the fishery.

3.1.1.8 Frameworks 40A to 43

Framework 40A (2004) was created to mitigate economic and social impacts of effort reductions imposed by Amendment 13. It was intended to provide more opportunity for vessels in the fishery to target healthy stocks by instituting the Category B (Regular) DAS Pilot Program, the Eastern US/Canada Haddock Special Access Program (SAP) Pilot Program, and the CA I Hook Gear Haddock SAP, a program that allows longline vessels to fish in Closed Area (CA) I to target haddock. The SAP program was partially approved and did not allow participation by vessels that are not members of the GB Cod Hook Sector. An Amendment 13 restriction was relieved that prohibited vessels from fishing both inside and outside the Western U.S./Canada Area on the same trip and allowed for increase in incidental TACs.

The NEFMC sought to improve the effectiveness of the Amendment 13 effort control program, including the opportunities to target healthy stocks. In Framework 40B (2005), the NEFMC considered measures to clarify the DAS allocations and provide a small allocation to all permit holders, to improve opportunities to target healthy stocks, and to adjust the GB Cod Hook Sector provisions to meet those purposes. Framework 40B included measures to address interactions between the herring fishery and regulated groundfish, since catches of groundfish in the herring fishery were discarded and did not contribute to groundfish OY. The framework revised the DAS leasing and transfer programs, modified provisions for the CA II Yellowtail Flounder SAP, changed the allocation criteria for the GB Cod Hook Sector, established a DAS credit for vessels standing by an entangled whale, implemented new notification requirements for Category 1 herring vessels, and removed the net limit for trip gillnet vessels.

Framework 41 (2005) revised the CA I Hook Gear Haddock SAP to allow participation by nonsector vessels. The program, like many of the measures in Framework 40A, was intended to help mitigate the economic and social impacts of Amendment 13.

Framework 42 (2006) introduced several measures to achieve rebuilding and fishing mortality targets, including the biennial adjustment anticipated from Amendment 13. The Framework instituted a GB yellowtail rebuilding strategy, changes to the Category B (regular) DAS Program and two Special Access Programs, and an extension of the DAS leasing program. It introduced the differential DAS system, where DAS were counted at the rate of 2:1 in certain areas in the Gulf of Maine and Southern New England. It also implemented a Vessel Monitoring System (VMS) requirement for DAS vessels.

Large haddock year classes had been leading to increased haddock bycatch by mid-water herring trawlers, particularly on Georges Bank. Framework 43 (2006) imposed a haddock catch cap on the herring fishery, an incidental catch allowance for other regulated multispecies, and a monitoring program for the catch cap. The existing classifications of herring midwater trawl and purse seine gear relative to the multispecies fishery were also modified.

3.1.1.9 FW 42 Lawsuit

The Commonwealth of Massachusetts and State of New Hampshire filed suit against the Secretary of Commerce over FW 42 provisions. The lawsuit argued that the Closed Area Model (CAM) used to develop measures did not comply with National Standard 2 requirements to use the best available science. The lawsuit also argued that measures were more stringent than necessary because the NEFMC and NMFS failed to consider the "mixed stock exception," which allows overfishing to continue under certain limited conditions.

On January 26, 2009, the U.S. District Court in Massachusetts affirmed the use of the CAM and rejected the argument that its use was not the "best available science." The order also said "The court temporarily suspends Framework 42 pending serious consideration and analysis of the Mixed-Stock Exception by Defendant." The court order led to considerable confusion over the management measures that remained in place. After filings by the parties in the suit, the court issued a subsequent ruling on February 17, 2009 that said (in part): "Framework 42 is hereby reinstated except for those provisions relating to the 2:1 DAS counting system, which remains suspended for thirty-eight (38) days from the date of this order." On February 23, 2009, the court extended the suspension of DAS counting provisions until April 10, 2009 so that the Council could review a NMFS filing on the applicability of the mixed stock exception. Other FW 42 measures were reinstated. On April 10, 2009, the court reinstated FW 42 in its entirety.

3.1.1.10 Magnuson-Stevens Fishery Conservation and Management Reauthorization Act

In 2006, the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (MSFCMA) updated the original MSA and its SFA amendments (MSFCMA 2007). The MSFCMA reauthorized the MSA for Fiscal Years 2007-2013 and contained new requirements for fishery management, including:

- The use of Annual Catch Limits (ACLs) and Accountability Measures (AMs) in all U.S. fisheries by 2011 to ensure that overfishing does not occur.
    - The ACLs must be set at or below the Acceptable Biological Catch (ABC) recommended by the Scientific and Statistical Committee (SSC) of the particular regional council.
    - The AMs must detail what actions will be taken in the event of a harvest level overage.
    - For stocks that were currently experiencing overfishing, the deadline for ending that overfishing was 2010.
- The use of Limited Access Privilege Programs (LAPP).
    - The term "limited access privilege" means a Federal permit, issued as part of a limited access system under Section 303A to harvest a quantity of fish representing a portion of the ACL that may be received or held for exclusive use by a person; and: (a) includes an individual fishing quota; but (b) does not include community development quotas as described in Section 305(i).
    - Much of the responsibility for the development of LAPPs and their requirements is delegated to the Councils, including what types of LAPPs can best meet the needs of a specific fishery, eligibility criteria for participation, and procedures for allocating harvest privileges.

One requirement in the MSFCMA applies specifically to New England fisheries. The Act states that the NEFMC, "may not approve or implement a fishery management plan or amendment that creates an individual fishing quota program, including a Secretarial plan, unless such a system, as ultimately developed, has been approved by more than 2⁄3 of those voting in a referendum among eligible permit holders…" Thus, a system for creating a referendum and determining

voting eligibility would need to be formulated if the NEFMC chose to pursue Individual Fishing Quotas (IFQs) as a management tool.

3.1.1.11 Interim Rule

Although the NEFMC was developing Amendment 16 to comply with the MSFCMA, NMFS reduced fishing mortality through an interim rule effective for Fishing Year 2009 (NMFS 2009a) to ensure compliance with legal deadlines. Interim regulations for commercial vessels include the Amendment 13 default DAS change (an 18% reduction in available Category A DAS) and expansion of the differential DAS counting area in Southern New England. Landing SNE/MA winter flounder, northern windowpane flounder, and ocean pout were prohibited, and a trip limit was adopted for witch flounder. The SNE/MA winter flounder SAP was eliminated for the duration of the rule, as was the state waters winter flounder exemption. There were mitigation measures such as a reduction in the minimum size for haddock, removal of the conservation tax for DAS transfers, liberalization of the DAS leasing program, extension of the Eastern U.S./Canada haddock SAP, and modifications to the CAI Hook Gear Haddock SAP. Recreational measures include an extension of the seasonal closure for GOM cod, a 10-fish bag limit on GB cod for party/charter vessels, a lowering of the minimum size for haddock, and a prohibition on retention of winter flounder in the SNE/MA stock area.

3.1.1.12 Amendment 16

Amendment 16, implemented May 1, 2010, provided major changes in the realm of groundfish management. Notably, it greatly expanded the catch share sector program. Sectors are voluntary, self-selected groups of fishermen that are allocated a portion of the available catch. Amendment 16 also implements annual catch limits (ACLs); exceeding these limits triggers additional management actions called accountability measures (AMs) in compliance with the MSFCMA. The amendment also included a host of mortality reduction measures for "common pool" (i.e. nonsector) vessels and the recreational component of the fishery. The amendment established that, starting in FY2012, the common pool would be managed with a trimester sub-ACL versus an annual one for all stocks except SNE/MA winter flounder, windowpane flounder, ocean pout, Atlantic wolffish, and Atlantic halibut.

3.1.1.13 Amendment 16 Lawsuit

A lawsuit filed by the Cities of Gloucester and New Bedford and several East Coast fishing industry members against NMFS challenged, among other things, that the sector program constituted a LAPP, and as such, should have been subject to additional requirements, like a referendum among permit holders for approval. In September 2012, The U.S. Court of Appeals for the First Circuit in Boston upheld the first court ruling against the plaintiffs. The provisions of Amendment 16 were upheld (Lovgren, J. et al. vs. Locke, G. et al. 2012).

3.1.1.14 Frameworks 44-46

Framework 44 was also adopted in 2009, and it set specifications for FY 2010 – 2012 and incorporated the best available information in adjusting effort control measures adopted in Amendment 16.

Framework 45 was approved by the Council in 2010 and adopts further modifications to the sector program and fishery specifications; it was implemented May 1, 2011.

Framework 46 revised the allocation of haddock to be caught by the herring fishery and was implemented in August 2011.

3.1.1.15 Amendment 17

Amendment 17, which authorizes the function of NOAA-sponsored state-operated permit banks, was implemented on April 23, 2012.

3.1.1.16 Frameworks 47-52

Framework 47, implemented on May 1, 2012, set specifications for some groundfish stocks for FY 2012 – 2014, modified AMs for the groundfish fishery and the administration of the scallop fishery AMs, and revised common pool management measures; modification of the Ruhle trawl definition and clarification of regulations for charter/party and recreational groundfish vessels fishing in groundfish closed areas were proposed under the RA authority.

Framework 48 was partially implemented on September 30, 2013; some measures in FW 48 are still in review. That action proposes revised status determination criteria for several stocks, modifies the sub-ACL system, adjusts monitoring measures for the groundfish fishery, and changes several AMs. The framework also exempted common pool handgear vessels from the trimester sub-ACL system for white hake.

Framework 49 is a joint Northeast Multispecies/Atlantic Sea Scallop action that modifies the dates for scallop vessel access to the year-round groundfish closed areas; this action was implemented on May 20, 2013.

Framework 50 was implemented on September 30, 2013, which set specifications for many groundfish stocks and modified the rebuilding program for SNE/MA winter flounder.

Framework 51 set specifications for FY2014 and makes several modifications to the administration of ACLs and AMs.

Framework 52 is under review and would revise the accountability measures (AMs) for the groundfish fishery for the northern and southern windowpane flounder stocks.

3.1.2 Other Actions Affecting the Fishery

3.1.2.1 Actions to Minimize Interactions with Protected Species

Many of the factors that serve to mitigate the impacts of the groundfish fishery on protected species are currently being implemented in the Northeast Region under either the Atlantic Large Whale Take Reduction Plan (ALWTRP) or the Harbor Porpoise Take Reduction Plan (HPTRP). In addition, the Northeast Multispecies FMP has undergone repeated consultations pursuant to Section 7 of the Endangered Species Act (ESA), including the most recent Biological Opinion issued by NMFS on December 16, 2013. In this Opinion, NMFS concluded that the continued operation of the Northeast multispecies fisheries, in addition to six other fisheries under their respective FMPs, over the next ten years may adversely affect, but is not likely to jeopardize, the continued existence of North Atlantic right whales, humpback whales, fin whales, and sei whales, or loggerhead (specifically, the NWA DPS), leatherback, Kemp's ridley, and green sea turtles, any of the five DPSs of Atlantic sturgeon, or GOM DPS Atlantic salmon.

3.1.2.1.1 Harbor Porpoise Take Reduction Plan

The Harbor Porpoise Take Reduction Plan (HPTRP) was developed pursuant to Section 118(f) of the Marine Mammal Protection Act (MMPA) to reduce the level of serious injury and mortality of the Gulf of Maine/Bay of Fundy (GOM/BOF) harbor porpoise stock due to incidental interactions with commercial gillnets. In 1996, a Harbor Porpoise Take Reduction Team was formed. A rule to implement the Harbor Porpoise Take Reduction Plan (63 FR 66464), and therefore, reduce harbor porpoise bycatch in U.S. Atlantic gillnets, was published on December 1, 1998, and became effective on January 1, 1999 (63 FR 71041). The Plan was amended on February 19, 2010 (75 FR 7383), and October 4, 2013 (78 FR 61821). Since gillnet operations differ between the New England and Mid-Atlantic regions, the Plan devised the following sets of measures for each region:

- **New England Region**: The New England component of the HPTRP pertains to all fishing with sink gillnets and other gillnets capable of catching multispecies in New England waters from Maine through Rhode Island. This portion of the plan includes time and area closures, as well as closures to multispecies gillnet fishing, unless pingers are used in the manner prescribed in the Take Reduction Plan regulations. For additional details, see 50 CFR 229.33 and the outreach guide at: **Error! Hyperlink reference not valid.**).
- **Mid-Atlantic Region:** The Mid-Atlantic portion of the HPTRP pertains to the Mid-Atlantic shoreline from the southern shoreline of Long Island, New York to the North Carolina/South Carolina border. It includes four management areas (Waters off New Jersey, Mudhole North (located in Waters off New Jersey Management Area), Mudhole South (located in Waters off New Jersey Management Area), and Southern Mid-Atlantic), each with time and area closures to gillnet fishing, unless the gear meets certain specifications. Additionally, during regulated periods, gillnet fishing in each management area of the Mid-Atlantic is regulated differently for small mesh (> 5 inches to < 7 inches) and large (7-18 inches) mesh gear. The plan also includes some time and area closures in which gillnet fishing is prohibited regardless of the gear specifications. For additional details, see 50 CFR 229.34 and the outreach guide at: http://www.greateratlantic.fisheries.noaa.gov/prot_res/porptrp/doc/HPTRPMidAtlanticGuide_Feb%202010.pdf

3.1.2.1.2 Atlantic Large Whale Take Reduction Plan

Large whales, in particular, humpback, fin, minke, and North Atlantic right whales, are known to interact with Category I and II fisheries in the (Northwest) Atlantic Ocean. As humpback, fin, and North Atlantic right whales are listed as endangered under the ESA, these species are considered strategic stocks under the MMPA (see Section 6.4.3). Section 118(f)(1) of the MMPA requires the preparation and implementation of a Take Reduction Plan (TRP) for any strategic marine mammal stock that interacts with Category I or II fisheries. In response to its obligations under the MMPA, in 1996, NMFS established the Atlantic Large Whale Take Reduction Team (ALWTRT) to develop a plan (Atlantic Large Whale Take Reduction Plan (ALWTRP)) to reduce serious injury to, or mortality of large whales, specifically, humpback, fin, and North Atlantic right whales, due to incidental entanglement in U.S. commercial fishing

gear.[1] In 1997, the ALWTRP was implemented; however, since 1997, the Plan has been modified as NMFS and the ALWTRT learn more about why whales become entangled and how fishing practices might be modified to reduce the risk of entanglement. In fact, two recent adjustments include the "Sinking Groundline Rule," that became effective in April 2009 (September 2, 2008; 73 FR 51228), and the "Vertical Line Rule," that became effective August 26, 2014 (June 27, 2014; 79 FR 36586).[2]

The ALWTRP consists of regulatory modifications and requirements (e.g., universal gear requirements); area- and season-specific gear modification requirements and restrictions(e.g., time/area closures) and non-regulatory measures (e.g., gear research and development, disentanglement, education and outreach) that, in combination, seek to assist in the recovery of North Atlantic right, humpback, and fin whales by addressing and mitigating the risk of entanglement in gear employed by commercial fisheries, specifically trap/pot and gillnet fisheries (http://www.greateratlantic.fisheries.noaa.gov/Protected/whaletrp/; 73 FR 51228; 79 FR 36586). Specifically, the plan identifies gear modification requirements and restrictions for Category I and II gillnet and trap/pot fisheries in the Northeast, Mid-Atlantic, and Southeast U.S. regions; these fisheries must comply with all regulations of the Plan.[3] For additional information on the ALWTRP, see: http://www.greateratlantic.fisheries.noaa.gov/Protected/whale trp/

3.1.2.1.3 Atlantic Trawl Gear Take Reduction Team

The Atlantic Trawl Gear Take Reduction Team (Team) was first convened in September 2006 by NMFS as part of a 2003 settlement agreement between the Center for Biological Diversity and NMFS to address the incidental mortality and serious injury of long-finned pilot whales, short-finned pilot whales, common dolphins, and Atlantic white-sided dolphins in several trawl gear fisheries operating in the Atlantic Ocean. In December 2008, the Team developed a Take Reduction Strategy consisting of voluntary measures, education and outreach efforts, and a research plan. For additional information on the Team, see: http://www.greateratlantic.fisheries.noaa.gov/Protected/mmp/atgtrp/

3.1.2.2 EFH Omnibus Amendment

The NEFMC is currently developing an Omnibus Essential Fish Habitat (EFH) Amendment for all of its FMPs. The amendment is being completed in two phases. Phase I, completed in 2007, reviewed and updated EFH designations and considered identification of HAPCs. Phase II is reviewing and update the gear effects evaluation and consider alternatives for optimizing management measures for minimizing the adverse effects of fishing on EFH across all FMPs. Implementation is expected in 2015.

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[1] The measures identified in the ALWTRP are also beneficial to the survival of the minke whale, which are also known to be incidentally taken in commercial fishing gear.

[2] The most recent rule (Vertical Line Rule) focused on trap/pot vertical line reduction, as the ALWTRT determined that gillnets represent less than 1% of the total vertical lines on the east coast and that the impacts from this gear on large whales is minimal (see Appendix 3A in the most recent Atlantic Large Whale Take Reduction Plan FEIS). However, even with the new rule, gear is still subject to existing restrictions under the ALWTRP for gillnet gear.

[3] The fisheries currently regulated under the ALWTRP include: Northeast/Mid-Atlantic American lobster trap/pot; Atlantic blue crab trap/pot; Atlantic mixed species trap/pot; Northeast sink gillnet; Northeast anchored float gillnet; Northeast drift gillnet; Mid-Atlantic gillnet; Southeastern U.S. Atlantic shark gillnet; and Southeast Atlantic gillnet (NMFS 2014).

3.2 PURPOSE AND NEED FOR ACTION

This amendment is designed to address concerns regarding fleet diversity and fishery consolidation and is prepared by the New England Fishery Management Council. After the Proposed Action is reviewed, the Amendment will be approved and implemented by the National Marine Fisheries Service.

Amendment 16 to the Northeast Multispecies FMP expanded the use of sector management for stocks managed by the FMP, and also implemented ACLs and AMs for the fishery. In the specification process for FY2010 (NEFMC 2010), catch limits for many multispecies stocks were set at very low levels, and several of these restrictions have remained in place. There has been concern that the low catch limits, in conjunction with expanded sector management, may lead to excessive consolidation and lack of diversity in the groundfish fleet. Likewise, there is concern that, as stocks rebuild and ABCs increase, there may be increased consolidation and decreased diversity in the groundfish fleet in the future. Because of concerns related to maintaining the diverse makeup of the fleet, as well as an interest in keeping active and thriving fishing ports throughout New England, the Council has considered measures in this action that would impose limits on the amount of allocation that individuals or groups of individuals may control.

3.3 GOALS AND OBJECTIVES

3.3.1 Goals and Objectives of the Northeast Multispecies FMP

The goals and objectives of the Northeast Multispecies FMP remain as described in Amendment 13 and will continue to frame the long-term management of the resource and fishery.

3.3.1.1 Goals

1. Consistent with the National Standards and other required provisions of the Magnuson-Stevens Fishery Conservation and Management Act and other applicable law, manage the northeast multispecies complex at sustainable levels.
2. Create a management system so that fleet capacity will be commensurate with resource status so as to achieve goals of economic efficiency and biological conservation and that encourages diversity within the fishery.
3. Maintain a directed commercial and recreational fishery for northeast multispecies.
4. Minimize, to the extent practicable, adverse impacts on fishing communities and shoreside infrastructure.
5. Provide reasonable and regulated access to the groundfish species covered in this plan to all members of the public of the United States for seafood consumption and recreational purposes during the stock rebuilding period without compromising the Amendment 13 objectives or timetable. If necessary, management measures could be modified in the future to insure that the overall plan objectives are met.
6. To promote stewardship within the fishery.

3.3.1.2 Objectives

1. Achieve, on a continuing basis, optimum yield for the U.S. fishing industry.
2. Clarify the status determination criteria (biological reference points and control rules) for groundfish stocks so they are consistent with the National Standard guidelines and applicable law.
3. Adopt fishery management measures that constrain fishing mortality to levels that are compliant with the Sustainable Fisheries Act.
4. Implement rebuilding schedules for overfished stocks, and prevent overfishing.
5. Adopt measures as appropriate to support international transboundary management of resources.
6. Promote research and improve the collection of information to better understand groundfish population dynamics, biology and ecology, and to improve assessment procedures in cooperation with the industry.
7. To the extent possible, maintain a diverse groundfish fishery, including different gear types, vessel sizes, geographic locations, and levels of participation.
8. Develop biological, economic and social measures of success for the groundfish fishery and resource that insure accountability in achieving fishery management objectives.
9. Adopt measures consistent with the habitat provisions of the MSA, including identification of EFH and minimizing impacts on habitat to the extent practicable.
10. Identify and minimize bycatch, which include regulatory discards, to the extent practicable, and to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

3.3.2 Goals of Amendment 18 to the Northeast Multispecies FMP

The NEFMC has identified four goals for this action:

1. Promote a diverse groundfish fishery, including different gear types, vessel sizes, ownership patterns, geographic locations, and levels of participation through sectors and permit banks;
2. Enhance sector management to effectively engage industry to achieve management goals and improve data quality;
3. Promote resilience and stability of fishing businesses by encouraging diversification, quota utilization and capital investment; and
4. Prevent any individual(s), corporation(s), or other entity(ies) from acquiring or controlling excessive shares of the fishery access privileges.

3.4 PUBLIC SCOPING

3.4.1 Control Date, Notice of Intent and Scoping Process

At the request of the Council, NMFS published a control date of April 7, 2011 (NMFS 2012a). The control date is intended to alert the fishing industry and the public that any present or future accumulation of fishing privileges may be limited or may not be allowed after or prior to the published control date. It also is intended to discourage speculative behavior in the market for fishing privileges while the Council considers whether and how such limitations on accumulation

of fishing privileges should be developed. However, in establishing this date, the Council is not obligated to take any further action. No limits or restrictions have been imposed on the groundfish fishery by establishing this control date. However, fishermen are encouraged to preserve any documents relating to their holdings or control of fishing privileges in the event that the Council does decide to take a future action.

NMFS published a Notice of Intent (NOI) on December 21, 2011 to announce its intent to develop an amendment (later named Amendment 18) and prepare an Environmental Impact Statement (EIS) to analyze the impacts of the proposed management alternatives. The purpose of the NOI was to alert the interested public to the commencement of the scoping process and to provide for public participation in the development of this amendment, consistent with the requirements of NEPA. The announcement stated that Amendment 18 would "reduce the likelihood that groundfish permit holders will acquire or control excessive shares of fishing privileges in the fishery and that over-consolidation will occur within the fleet" (NMFS 2011b). The scoping period extended from that date until March 1, 2012.

NEPA provides a mechanism for identifying and evaluating the full spectrum of environmental issues associated with Federal actions and for considering a reasonable range of alternatives to avoid or minimize adverse impacts to the extent practicable. The scoping process is the first and best opportunity for members of the public to raise issues and concerns for the Council to consider during the development of an amendment. The Council relies on public input during the scoping process both to identify management issues and develop alternatives that meet the Northeast Multispecies FMP objectives. Public comments early in the amendment development process help the Council to address issues of concern in a thorough and appropriate manner.

A scoping document was prepared and distributed to over 1,800 interested parties to inform the public of the Council's intent to gather information necessary for the preparation of this action and ask for suggestions and information on the range of issues to be addressed. During the scoping period, ten scoping hearings were conducted to receive public comments (Ellsworth and Portland, Maine; Portsmouth, New Hampshire; Fairhaven, Gloucester, Hyannis and Plymouth, Massachusetts; South Kingstown, Rhode Island, New York; and Manahawkin, New Jersey) and numerous written comments were also received. These comments were considered carefully by the Council when developing the management alternatives under consideration in this amendment.

3.4.2 Scoping Comments

Comments were received from a variety of stakeholders, including university scientists, nonprofit organizations, individual fishermen, fishing corporations, state agencies, and other interested citizens (Table 1). At the public hearings, oral comments were received from 56 people (duplicates removed), either representing themselves or a group. Written comments were received from 55 individuals or groups (duplicates removed). All written comments and summaries of hearings are provided at www.nefmc.org. The major themes identified through the scoping process are summarized here, though viewpoints on these themes varied widely. It should also be noted that several comments represent the views of more than one individual (e.g., from an industry association).

Table 1 - Public scoping comments

	Total	Supports A18 objectives	Opposes A18 objectives	General/ unrelated
	oral/written	oral/written	oral/written	oral/written
Fisherman	37/14	22/9	5/5	10/0
Fishing corporation	4/2	2/1	2/1	0/0
Fishing organization	5/6	3/1	2/3	0/2
University scientist	2/3	2/3	0/0	0/0
Nonfishing organization	5/17	5/15	0/1	0/1
State agency	1/1	0/1	0/0	1/0
Other citizen	2/12	1/12	0/0	1/0
Total	**56/55**	**35/42**	**9/10**	**12/3**

Note:
Duplicate oral and written comments removed, though some commenters submitted both oral and written comments.

The majority of the oral and written comments indicated that the intent of Amendment 18 is very important for the fleet. There was general concern expressed about the effect the catch share system has had on small vessels. Some fishermen said it was impossible remain viable under catch shares, and therefore Amendment 18 had to move forward. There have been severe impacts on crew; at the time of scooping, 165 crew jobs had been lost. Comments opposed to this action were concerned about the potential that an accumulation cap or restrictions to maintain fleet diversity may result in reduced flexibility and profitability of the fishery. The opposition was not in favor of accumulation caps and requested grandfathering individuals with holdings that may be above the cap. The opposition felt that it would be better to allow fleet diversity to be maintained at the sector level instead of mandated.

The following are **key themes** that emerged from scoping.

3.4.2.1 Fleet Diversity

The majority of comments supported the concept of fleet diversity. The need for a firm definition of fleet diversity was expressed, but the comments did not elucidate specifics. Concerned citizens wanted to ensure that their access to seafood caught by locally-based fishermen continues, feeling that fish should not be just an investment for large entities. Without the implementation of Amendment 18, people foreshadow coastal towns devoid of fishermen and associated infrastructure, job losses, negative impacts on future generations, and fewer options to enjoy fish. Some commenters noted that the rate of concentration of revenue changed in 2010 following the implementation of catch shares. One commenter thought that a fleet that consisted of only large vessels would limit the Council's ability to react to changing stock assessments. A program to supply healthy food to hospitals is being implemented and could be impacted by fleet consolidation towards just larger vessels. Commenters wanted to provide opportunity for a variety of vessel, gear, entity types, and ports to be active in the fishery, enable fishing communities to define diversity goals and have a degree of local control, maintain participation of rural and historic ports in the fishery, provide opportunity for new entrants in the fishery, and maintain viability of shoreside infrastructure and the inshore and offshore fleets.

Sub-ACL for HA permit holders. A few commenters would like a sub-ACL for Handgear HA permit holders, so that they do not have to enroll in the common pool and have their quota harvested by other gear types. To them, this could help protect a 400 year old fishery. A handgear fisherman stated that he could never accumulate enough quota to get out of the common pool and was looking to this amendment to help, because he cannot access existing permit banks, since he is not in a sector.

Inshore/Offshore Areas. The issue of larger, traditionally offshore vessels fishing more inshore since the removal of cod trip limits was very important to several commenters. The concept of fleet diversity was appealing to preserve the inshore fleet that supports a broad range of coastal communities. Biologically, smaller vessels were thought to not have as much of an impact on the aggregations of cod spawning inshore. Extreme frustration was expressed with the commitment and sacrifices that the inshore fleet made to rebuild the inshore cod stock only to have it seemingly wiped out by the influx of offshore boats. Some suggested that there be a boundary line to separate fishing areas for larger and smaller vessels, dividing the GOM cod into east and west areas. Localized depletion of GOM cod is exacerbating fleet consolidation, because the smaller vessels are unable to catch their quota. There was a suggestion of establishing a sanctuary area for small boat fishermen; the offshore vessels would be able to fish in offshore areas if restricted from fishing inshore – to implement vessel size or horsepower upper limits in specific (inshore) areas.

Quota Set-Aside. The concept of a quota set-aside was considered important to a lot of commenters. It was suggested that allocation should be "taken off the top" for use by set-asides or permit banks. There were a number of suggestions for the recipients of this quota; new entrants were the most recommended. It was thought to be very difficult for new entrants into the fishery due to the high costs of permits; and that the status quo is preventing new entrants. It was expressed that smaller-scale fishermen have difficulty competing with larger corporations speculating on permits, and that there needs to be a mechanism to help smaller-scale fishermen remain competitive. Quota set-asides could be used to establish community permit banks to help small vessels and specific communities. This may ensure the viability of the inshore fleets. Fishermen at the public hearings told of building their own businesses up over the span of a few decades only to lose it with the implementation of catch shares; they are now unable to pass their businesses on to their children, ending family traditions. Another idea was that quota set-asides could be used to reward sectors that meet certain benchmarks. One suggestion was to give fishermen quota from a permit bank after a set profit was made. One caveat of a permit bank is it creates competition by supplying cheap quota to qualifying individuals, but it may have negative impacts on those not benefiting. It was suggested that set-asides could be implemented as the resource recovers, but not at this time.

Incentives to Actively Fish. A portion of the comments expressed the need to prevent a situation where most all of the PSC is held by persons who do not actively fish, because of the fear that it would lead to the consolidation of the entire quota into large corporations that would largely export the fish, maximizing profits versus sustainable harvests. It was suggested that "use it or lose it" measures be adopted to ensure that holders of quota remain active in the fishery.

Baseline Criteria for Leasing and Allocations. Many felt that the formula to calculate allocations, adopted through Amendment 16, is flawed and unfair, because it is based on history instead of vessel characteristics and/or the number of DAS that was associated with permits. South Shore Massachusetts fishermen felt their allocations were hit disproportionally hard by the

formulas, because of the rolling closures and trip limits during the period of time used in formulas. The ability of vessels to trade GB cod for GOM cod is seen as a problem and further contributing to the increase of effort inshore. Some baseline leasing restrictions on GOM and GB cod, that would restrict the ability of large vessels to get quota from smaller vessels, were suggested, in addition to restricting the ability to lease into stock areas and certain species. There was one suggestion to retain a certain percentage of a permit's allocation in the home state if it is sold. Other suggestions included fixing the price of leased allocations, revisiting the split between commercial and recreational fisheries in cod quota allocations, preventing fishing in multiple stock areas of a species in a single trip, having a more equitable distribution of allocation geographically, limiting corporate vessels to specific areas, and to only allowing leases from larger to smaller vessel, not vice versa.

3.4.2.2 Accumulation Limits

Commenters in favor of accumulation caps indicated that caps are necessary as a disincentive for fishing businesses to expand. It was thought that larger vessels have a larger negative environmental impact. The current lack of accumulation limits is allowing stocks with low allocations to be controlled by a small number of individuals who are able to buy up the quota. It was stated that 40% of GB winter flounder is controlled by three entities, and that this may happen with GOM cod if catch limits are reduced. A broad range of caps were suggested including individual, sector, permit number, quota control and PSC. One commenter considered the current situation to be in violation of National Standard 4 that is designed to ensure equitable allocation to all fishermen in a way that "no particular individual, corporation, or other entity acquires an excessive share of such privileges." Commenters wanted to match capital with quota availability, while ensuring access to an economically viable number of participants, prevent windfall gains to a small number of individuals at the expense of others, and prevent market control and price-fixing by a small number of owners.

3.4.2.3 Comments Opposed to Amendment 18

Those opposing this amendment generally wanted no caps on the number of permits or allocation, no ACE set-aside, no incentives, no owner requirements, no trading for fish only, no price controls, no area sign in, and no division of the fishery. Opposition centered on the further complication of management, and that diversity goals could be achieved at the sector level. One sector has already accounted for fleet diversity in its sector plan and preferred to keep the freedom allowing sectors do this. It was thought that accumulation limits would violate the consolidation goals of Amendment 16. Amendment 16 did not create a LAPP system, and Amendment 18 was viewed as a way to backfill into a LAPP system. Amendment 18 would reduce flexibility and would trap the fleet in untenable economic positions. The proposed measures would prevent fishermen from achieving profitability, but if closed areas were opened and they were allowed to catch more fish, the problems would solve themselves. No one has enough allocation to be viable. It was noted that this amendment is causing uneasiness with lenders of capital.

One commenter opposing accumulation caps does not want to punish people who have worked hard to accumulate their quota. A number requested that if an accumulation cap is set, that any party holding quota above the cap be grandfathered in. Any changes to the new, fragile catch share system may negatively impact the system and the fleet should be allowed to adapt.

3.4.2.4 Questions

Some issues the public expressed raise the following questions. Positions pro and con were expressed by the public.

Fleet Diversity

- Should a "fleet diversity" be specifically defined in regulations?
- Can the industry and fishing communities maintain fleet diversity on their own or are regulatory approaches necessary?
- Are permit banks helping to maintain fleet diversity?
- Could fleet diversity be promoted by:
    - Increasing industry flexibility?
    - Increasing opportunity to harvest optimum yield?
    - Restricting ACE leases between vessels of different size categories?
    - Creating sub-ACLs for specific permit categories?
    - Limiting fishing area by vessel size?

Accumulation Caps

- How should harvest capacity match the availability of quota?
- At what point does reduction in overcapitalization result in the control of excessive shares of the fishery?
- If a holdings cap is established, would there be grandfathering of entities whose present holdings level exceeds said cap?

General

- Do we have sufficient data on and clear definition of entities in the fishery?
- Would this amendment decrease flexibility and profitability for the industry?
- Would this amendment make management even more complicated?

3.4.2.5 Nonregulatory Approaches

The scoping comments included ideas for nonregulatory approaches that would meet the Amendment 18 goals and objectives. For example, with criteria or guidelines, sectors could be given the latitude to create their own processes for maintaining an active fleet that reflects the diversity (e.g. vessels, owners, ports) of their membership. A marketing campaign could be created to highlight locally caught fish. Community supported fisheries could be fostered to better support local fishermen.

3.4.2.1 Other Comments

A few comments were received that were not directly related to the goals of this action. A couple of commenters thought that existing strategies were inappropriate to preserve the ecosystem (e.g. reliance on Catch Per Unit Effort (CPUE) to manage our diverse ecosystem). It was suggested that penalties for multiple violations of exceeded larger trip limits should be enacted. Closed areas should not be opened, and sport fishing should be prohibited in the closed areas. Fishermen expressed some concern about the compounding effect of monitoring costs and the expected further reductions in cod allocations following the benchmark assessment. For monitoring, tiered standards and alternatives to industry funding were suggested. Sector fees were thought to be too high. Fishermen in southern areas were concerned that what happened to

cod might happen in other fisheries, such as monkfish. A small number were unhappy with the appearance of unethical voting by certain Council members.

3.4.3 Response to Scoping Comments

Summaries of the scoping hearings and all written scoping comments were provided to all Council members. These documents, as well as recordings of the scoping hearings, were made available to the public. The Council reviewed scoping comments at its June 2012 meeting. The Groundfish Committee (Committee) discussed issues raised during scoping at several of its meetings between 2012 and 2014. Some of the scoping comment themes were incorporated into the alternatives considered in this action and others were not, as described below.

3.4.3.1 Fleet Diversity

Sub-ACL for HA permit holders. In June 2013, the Council moved to task the Groundfish Committee to consider concepts outlined in a proposal by the Northeast Hook Fishermen's Association that would create a sub-ACL for HA permits and related measures. The Committee and its PDT worked to analyze the concepts and potentially develop measures. In January 2014, the Council voted to include an alternative in Amendment 18 with several options for a HA sub-ACL and fishery measures (Section 4.3.2). The PDT developed these options and provided feedback to the Committee. In March 2014, the Groundfish Committee considered these options and voted to recommend to the Council that three options remain in the alternative for analysis: removing the standard tote requirement, removing the March 1-20 fishery closure for HA permits, and a new option that would allow sectors to request an exemption from VMS for sector vessels fishing with handgear. Based on the PSC associated with HA permits, the Committee felt that a distinct sub-ACL would be too small for NMFS to administer and would not create a fishery that is viable for the number of potential participants. The Committee also considered how discards might be accounted for. Although discards would likely be small relative to the wider fishery, the Committee was not comfortable with considering them *de minimus*, since the Council has identified greater accountability in groundfish catch accounting as a priority. The Committee motions were supported by the Groundfish Advisory Panel (GAP) at its April 2014 meeting.

Inshore/Offshore Areas. In January 2014, the Groundfish Committee discussed the claim raised by the public during scoping for Amendment 18 that, in the absence of trip limits, large vessels are fishing more in inshore areas, particularly targeting Gulf of Maine cod, resulting in area conflicts with smaller vessels and localized depletion. After much discussion, the Committee tasked the PDT with analyzing the effort by vessel classes in Statistical Area 514 and adjacent areas, as appropriate, between FY2004 and FY2012. The PDT started this work by focusing on Gulf of Maine cod. In April 2014, the PDT presented an analysis to the Committee of the biological distribution of Gulf of Maine cod and temporal trends in effort by different vessel size classes in Area 514. The Committee discussed the analysis, but was not ready to recommend alternatives for Amendment 18 at that time and asked the PDT to continue its work. The Committee was also informed by a Groundfish Advisory Panel motion from April 2014, which did not support the development of inshore/offshore areas. In April 2014, the Council moved to task the Committee with developing measures in Amendment 18 that address potential concentration of effort in the inshore Gulf of Maine and impacts on GOM cod and other depleted stocks without reestablishing trip limits.

Quota Set-Asides. In April 2014, the Groundfish Committee voted to not develop quota set-aside alternatives in this action. A Groundfish Advisory Panel (GAP) motion from April 2014 did not support such alternatives. The GAP felt that the groundfish fishery should not be used as a testing ground for such a concept in the Northeast. Rationale for the Committee motion included feeling that there is not sufficient quota for current fishery participants, and that the fishery cannot afford new entrants at this time. The Committee felt that development of set-aside alternatives would be more feasible when more stocks are rebuilt. In April 2014, the Council moved to not develop measures related to quota set-asides.

Incentives to Actively Fish. In March 2014, the Groundfish Committee voted against a motion that would have created alternatives for a sunset provision in this action, where lease-only PSC holders would relinquish their PSC after a certain period of time of being inactive in the groundfish fishery. The Committee discussed the potential to make this a topic that could be developed through a future framework, but did not pass motions to this effect. The Committee expressed concerned that this might increase effort at a time when effort should be decreased, particularly on GOM cod. The Committee also felt that leasing protects fleet diversity and prevents consolidation of holdings, and was concerned about the potential impacts of reallocating the fishery.

Baseline Criteria for Leasing and Allocations. In April 2014, the Groundfish Committee voted to not develop baseline criteria for leasing in this action. The Committee felt that the benefits of allowing ACE to be traded across fishery gear types and vessel class sizes enhance efficiency and imposing barriers to leasing are counterproductive to the fleet diversity goals of this action. This position was also supported by the GAP at its April 2014 meeting. The GAP expressed that:

> *"Such restraints are incompatible with the fundamental concept that sectors themselves should decide when, how and by whom the sector's allocation should be utilized. Trade restraints would limit sectors' ability to pursue their own diversity goals, such as providing allocation to new entrants, or giving preference to owner-operators, specific vessel classes, and/or gear types" (GAP motion April 1, 2014).*

In April 2014, the Council moved to not develop measures related to baseline criteria.

3.4.3.2 Accumulation Limits

The Council and the Groundfish Committee have discussed issues related to accumulation limits at several meetings since 2010, particularly since March 2013. During the course of developing this action, it was determined that additional expertise from an external contractor would be needed to help the Council determine an appropriate excessive shares limit relative to this fishery. In July 2013, a consultant (Compass Lexecon) was asked to provide an analysis of whether excessive shares exist in the Northeast multispecies fishery today and to recommend an appropriate excessive shares limit in the fishery. Their report was completed in December 2013 (Mitchell & Peterson 2013) and will be peer reviewed by the Center for Independent Experts in June 2014. Several accumulation limit alternatives are included in Section 4.1 that would limit permit or PSC holdings. Accumulation limits specific to permit banks were considered, as well as a regulatory definition for nonprofit permit banks, but the Council moved in April 2014 to not include such measures (Section 0). The Council felt that permit banks should be assigned the

same accumulation limit as other entities. This position was also supported by the Committee and GAP at their April 2014 meetings.

3.5 LEGAL PROVISIONS

3.5.1 National Standards

In the 1996 amendments to the MSA, Congress added provisions directly related to social and economic factors for consideration by Councils and NMFS (SFA 1996).

3.5.1.1 National Standard 4

National Standard 4 of the MSA states that:

> *"If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be:*
>
> *A. fair and equitable to all such fishermen;*
>
> *B. reasonably calculated to promote conservation; and*
>
> *C. carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges."*

National Standard 4 Guidelines state that:

> *"An allocation scheme must be designed to deter any person or other entity from acquiring an excessive share of fishing privileges, and to avoid creating conditions fostering inordinate control, by buyers or sellers, that would not otherwise exist" (NMFS 2009b)*

There is no widely-accepted, standard definition or measure of "excessive shares" in fisheries, but it is generally considered to include issues of market power and equitable opportunity to participate in a fishery. In 2002, the Government Accountability Office reported that NOAA should provide guidance to Councils on how to ensure that NS 4 is being met, particularly for IFQ fisheries (GAO 2002). In 2007, NOAA published a technical memorandum with guidance on the design of LAPPs, which indicated that when developing an accumulation limit, managers need to identify a cap that is likely to result in market power in the fishery, and consider that as an upper bound. Then, also consider the management objectives of the fishery that are social in nature (e.g. current and historical participation, fairness to different states, entry-level fishermen, crew, etc.). Thus, it recommends balancing National Standards 4 and 8. The identification of a cap to prevent market power is a more straight-forward task than a cap that would achieve the other social objectives. The report states: "…other than broadly defines benefit cost analysis, there is no body of theory, economic or otherwise, upon which to base the determination of the Management Objective share limit" (Anderson & Holliday 2007, p. 53). Although the Northeast multispecies fishery is not an IFQ or LAPP, a similar approach may be appropriate.

3.5.1.2 National Standard 8

National Standard 8 of the MSA states that:

> *"Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities."*

Section 316 of MSA defines a fishing community as:

> *"A community which is substantially dependent on or substantially engaged in the harvesting or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community."*

National Standard 8 requires the NEFMC to consider the importance of fishery resources to affected communities and provide those communities with continuing access to fishery resources, but it does not allow the NEFMC to compromise the conservation objectives of the management measures. "Sustained participation" is interpreted as continued access to the fishery within the constraints of the condition of the resource.

3.5.2 National Environmental Policy Act

NEPA requires federal agencies to consider the interactions of natural and human environments and the impacts on both systems of any changes due to governmental activities or policies. This analysis should be done by means of "a systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences ... in planning and decision-making" (NEPA section 102(2)(a)). Environmental values must be considered and weighed on par with technical and economic considerations. Environmental values include angler satisfaction, job satisfaction, an independent life-style for commercial fishermen, and the opportunity for species to exist in the wild for the non-consumptive user. NEPA specifies that the term "human environment" shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment (40 CFR 1508.14). When analyses predict that a fishery management action or policy will have a significant effect on the human environment, a detailed EIS with analysis of these impacts must be prepared. Amendment 18 addresses this requirement.

4.0 ALTERNATIVES UNDER CONSIDERATION

4.1 ACCUMULATION LIMITS

4.1.1 Entities to Which Accumulation Limit Alternatives Would Apply

The alternatives under consideration in Section 4.1 apply to various combinations of the following: "individual human persons," "permit banks" and "entities." NMFS would likely apply an accumulation limit to human persons and state-operated permit banks for the following reasons:

- Definitions for "permit bank" and "entity" have not been identified.
- The guidance on Regulatory Flexibility Act (RFA) analyses is currently being revised with respect to which entities the RFA applies.
- For each of the nonprofit permit banks, there is a human person associated with each permit in the NMFS database.
- The permit cap in the scallop fishery applies to human persons. In Scallop Amendment 11, the preferred alternative had the permit cap apply to individuals and entities, but the Final Rule stated that the cap applies to just individuals.

Establishing accumulation limits at the individual human person level rather than the entity level could be a more effective approach to achieving the Amendment 18 goal of preventing excessive shares, as business entities can form and reform with different configurations of owners, perhaps to avert an accumulation limit. Compass Lexecon recommended accumulation limits at the individual human person levels (Mitchell & Peterson 2013, p. 39). For MRIs held by more than one person, NMFS does not have data on the percent interest of persons in those MRIs (Section 6.5.4.1). Under the alternatives here, one cannot be associated with more than X amount of PSC (Section 4.1.2) or permit/MRI (Section 1.1.1). Each individual permit holder would be subject to the accumulation limit alternative that is approved, no matter how permits were obtained (e.g., issued by NMFS, purchased, bequeathed).

4.1.2 Limit the Holdings of PSC[4]

4.1.2.1 Alternative 1: No Action

No action. Do not limit the holdings of PSC.

Rationale: There is no federal requirement to implement accumulation limits for the fishery. However, NMFS does need to ensure that the FMP complies with National Standard 4 (Section 3.5.1.1). The absence of an accumulation limit would allow the market to determine the efficient concentration of holdings for the fishery.

[4] In January 2014, the Council voted to develop alternatives that would apply a PSC cap to a subset of stocks.

4.1.2.2 Alternative 2: Limit Holdings of Stock-specific PSC at the Maximum Held by an Individual or Permit Bank as of the Control Date[5]

For any single fishing year, individual human persons and permit banks shall be assigned no more than the maximum stock-specific PSC that was held by an individual human person or permit bank as of the control date for Amendment 18 (April 7, 2011), rounded up to the nearest whole number.

Rationale: Alternative 2 would establish an accumulation limit for the multispecies fishery that constrains the holdings of stocks in the multispecies complex. This alternative was developed based on the January 2014 Council motion to develop stock-specific PSC caps and uses the control date established by NMFS at the request of the Council. In the *Federal Register* notice, NMFS indicated that those individuals or entities holding permits/MRIs prior to the control date may be restricted to being assigned PSC by their permit/MRI holdings as of the control date (NMFS 2011b; 2012a). According to the draft data of PSC holdings available to the Groundfish Plan Development Team, PSC holdings for FY2013 indicate that the current holdings of some individuals and permit banks Table 37 are greater than the maximum holdings as of the control date (Section 6.5.4.3.2, Table 36). Thus, this alternative may force divestiture. Final data on PSC holdings would be provided by the Analysis and Program Support Division (ASPD) at the NMFS Greater Atlantic Regional Fisheries Office (GARFO). This alternative would not limit ACE leasing.

Table 2 – Potential accumulation limits under Alternative 2

Stock	PSC Limit	Stock	PSC Limit
GB cod	10	Witch flounder	9
GOM cod	8	GB winter flounder	23
GB haddock	15	GOM winter flounder	7
GOM haddock	7	Redfish	10
GB yellowtail flounder	14	White hake	8
SNE/MA yellowtail flounder	5	Pollock	6
CC/GOM yellowtail flounder	8	SNE/MA winter flounder	n/a*
Plaice	9		
Note: Data represent the maximum PSC held by an individual human person or permit bank as of April 7, 2011, rounded up to the next whole number. This data has been prepared by the Groundfish Plan Development Team. Data on SNE winter flounder are not yet available to the PDT. The data are likely within 1% of the true values. Final data would be provided by the ASPD at the NMFS GARFO. * SNE/MA winter flounder was not allocated until FY2012.			

[5] In March 2014, the Committee agreed by consensus to include Alternative 2 developed by the PDT.

4.1.2.3 Alternative 3: Limit Holdings of Stock-Specific PSC to the Same Level for each Stock in the Fishery[6]

For any single fishing year, individual human persons and permit banks shall be assigned no more than 15.5 of the PSC for a single allocated stock.

Rationale: Alternative 3 would establish an accumulation limit for the multispecies fishery that constrains the holdings of stocks in the multispecies complex. This alternative was developed based on the January 2014 Council motion to develop stock-specific PSC caps and an analysis provided by Compass Lexecon (Mitchell & Peterson 2013). Alternative 3 is consistent with the recommendations of Compass Lexecon, as it would likely result in maintaining an *unconcentrated* fishery for each stock, defined as keeping the Herfindahl-Hirschman Index (HHI) to <1,500 (Mitchell & Peterson 2013; p. 53). Compass Lexecon determined that, conservatively, stock-specific PSC holdings of 25 would constitute a theoretical maximum and would prevent excessive shares in a fishery where there is a competitive fringe of at least 38% (>38% of the PSC is held by many people, each with <2% of the PSC), which they determined to be case for the current Northeast multispecies fishery. However, they also concluded that a PSC cap of about 15 would be sufficient to ensure low concentration regardless of the competitive fringe (Mitchell & Peterson 2013; p. 53). Here, excessive shares is defined as in the Compass Lexecon report, "a share of access rights that would allow a permit owner [holder] or sector to influence to its advantage the prices of the fishery's output or the prices paid for leased Annual Catch Entitlements ("ACE")" (Mitchell & Peterson 2013, p. i). According to the draft data of PSC holdings available to the Groundfish Plan Development Team, a PSC cap of 15 for a stock may force divestiture for GB stocks of winter flounder, yellowtail flounder and haddock and SNE/MA winter flounder, if those stocks are selected by the Council (Section 6.5.4.3.2, Table 37). Final data on PSC holdings would be provided by the ASPD at GARFO. This alternative would not limit ACE leasing.

Option A: Individual human persons who have PSC holdings for a stock at 15.5 may acquire PSC for other stocks up to 15.5. Any PSC acquired that exceeds 15.5 would be split off a permit and redistributed to the fleet in the manner described in Framework Adjustment 45.[7]

Rationale: Option A would allow some flexibility to those permit holders with holdings at an accumulation limit for a stock to acquire additional permits.

[6] In March 2014, the Committee agreed by consensus to include Alternative 3 developed by the PDT with a PSC cap of 25 for each stock, but then revised this alternative in April 2014 to a PSC cap of 15.5 for each stock.

[7] In April 2014, the Council voted to include this option.

4.1.2.4 Alternative 4: Limit Holdings of Stock-Specific PSC by Stock Type[8]

For any single fishing year, individual human persons and permit banks shall be assigned no more than the following PSC: 15 of the Gulf of Maine, Cape Cod, Southern New England, and Mid-Atlantic stocks, 20 of the unit stocks, and 30 for the Georges Bank stocks.

Table 3 - Potential accumulation limits under Alternative 4

Stock	PSC Limit	Stock	PSC Limit
GB cod	30	Witch flounder	20
GOM cod	15	GB winter flounder	30
GB haddock	30	GOM winter flounder	15
GOM haddock	15	Redfish	20
GB yellowtail flounder	30	White hake	20
SNE/MA yellowtail flounder	15	Pollock	20
CC/GOM yellowtail flounder	15	SNE winter flounder	15
Plaice	20		

Option A: Limit the PSC holdings of GB cod at 30, GOM cod at 15, and pollock at 20.[9]

Rationale: Alternative 4 would establish an accumulation limit for the multispecies fishery that constrains the holdings of stocks in the multispecies complex. This alternative was developed based on the January 2014 Council motion to develop stock-specific PSC caps and related comments from the public and the Council that accumulation limits could be lower for stocks held by a wider distribution of individuals. Draft data of PSC holdings available to the Groundfish Plan Development Team indicate that the GB stocks are generally more concentrated than the GOM, CC, SNE or unit stocks, though there are not necessarily fewer individual persons holding PSC for the GB stocks than the other stocks (Section 6.5.4.3.2, Table 37). Alternative 4 would allow more concentration of holdings for the GB stocks. According to the draft data, these percentages would not force divestiture of current holdings, except for SNE/MA winter flounder. Final data would be provided by the ASPD at GARFO. Alternative 4 is consistent with the recommendations of Compass Lexecon, as it would likely result in maintaining an *unconcentrated* fishery for the GOM/CC/SNE and unit stocks, defined as keeping the Herfindahl-Hirschman Index (HHI) to <1,500, and preventing no more than *moderate concentration* for the GB stocks, keeping the HHI below 2,500 (Mitchell & Peterson 2013). This alternative would not limit ACE leasing.

[8] In March 2014, the Committee agreed by consensus to include Alternative 4 developed by the PDT.

[9] In March 2014, the Committee voted to include Option A.

4.1.2.5 Alternative 5: Limit Holdings of Stock-Specific PSC[10]

For any single fishing year, individual human persons and permit banks shall be assigned no more than the following PSC: 30% of Georges Bank winter flounder and 20% for all other allocated stocks in the fishery.

Rationale: Alternative 5 would establish an accumulation limit for the multispecies fishery that constrains the holdings of selected stocks in the multispecies complex. This alternative was developed by the Groundfish Committee in March 2013. The accumulation cap for GB winter flounder would be high enough to not force divestiture of current holdings, according to the draft data of PSC holdings available to the Groundfish Plan Development Team (Section 6.5.4.3.2). Final data on PSC holdings would be provided by the ASPD at GARFO. This alternative would not limit ACE leasing.

4.1.2.6 Alternative 6: Limit Collective Holdings of PSC[11]

For any single fishing year, individual human persons and entities shall be assigned no more than 15.5 of the PSC of all the allocated stocks in aggregate.

Rationale: Alternative 6 would establish an accumulation limit for the multispecies fishery that constrains the holdings of stocks in the multispecies complex. The formula for evaluating compliance with the cap would be as follows:

$$\text{Total PSC held} \leq (\#\text{ of allocated stocks}) * 100 * 0.155$$

Thus, with 15 allocated stocks, as at present, the total PSC held by an individual or entity must be ≤ 232.5. This would allow an individual or entity to hold PSC for a single stock in excess of 15.5, so long as the total holdings do not exceed 232.5. According to the draft data of PSC holdings available to the Groundfish Plan Development Team, a 15.5 collective cap would not force divestiture for any individuals as of FY2013, as the most held by an individual is 140.4 (Section 6.5.4.3.1, Table 34). Final data on PSC holdings would be provided by the ASPD at GARFO. This alternative would not limit ACE leasing.

[10] In March 2014, the Committee voted to include this alternative.

[11] In April 2014, the Council voted to include this alternative.

4.1.3 PSC Holdings in Excess of Accumulation Limit

Note: Should NMFS determine that holdings above the accumulation limit selected through this action constitute an excessive share under the Magnuson-Stevens Act, some options in this section may not be viable.

If a PSC cap alternative is selected in Section 4.1.2 (Alternatives 2-6), this section identifies how PSC holdings in excess of the PSC cap would be treated

4.1.3.1 Grandfathering Current Holdings that are in Excess of an Accumulation Limit

This section identifies options for how the PSC held by an individual in excess of a PSC cap would be treated upon the implementation of this action.

The Council may select Option A or B.

Option A. Do not grandfather current holdings.[12] Under this option, if an individual or entity held more PSC than the accumulation limit as of the implementation of Amendment 18, the individual or entity would be restricted to holding no more than the accumulation limit. Current holdings that result in exceeding the PSC holdings limit would need to be divested (permits sold or not renewed).

Rationale: This option would ensure that the current holdings of all permit holders do not exceed the accumulation limit upon establishment of this action.

Example: If the PSC limit for a stock is X, and one's holdings as of the implementation date = X+3, the permits associated with a PSC of 3 would have to be divested.

Option B. Grandfather current holdings as of the control date.[13] If an individual or entity held more PSC than the accumulation limit on the control date (April 7, 2011), they would be restricted to holding no more than the PSC they held as of the control date. The grandfathered holdings may be used by the individual (fished or leased). The grandfathered status of an individual or entity is not transferrable and is not attached to the holdings itself.[14]

Rationale: This would allow certain permit holders to exceed the accumulation limit established through this action, those who held a higher amount of PSC on the control date than the accumulation limit. This may result in less disruption to the individuals with holdings above whichever accumulation limit alternative is adopted than if there was no grandfathering provision.

Example: If the PSC limit for a stock is X, and one's holdings as of the control date = X+2 and as of the implementation date = X+3, the permits associated with a PSC of X+2 could still be held and used.

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[12] In August 2014, the Committee voted to move this option to the Considered but Rejected section. This motion will be considered by the Council in November 2014.

[13] In June 2014, the Council voted to add this option to the document.

[14] In September 2014, the Committee voted to add this last sentence. This motion will be considered by the Council in November 2014.

4.1.3.2 Disposition of Current Holdings in Excess of what is Allowed (the accumulation limit plus any grandfathered holdings)

This section pertains to how to treat holdings at the implementation of this action that are in excess of the accumulation limit alternative selected (which are not grandfathered under Section 4.1.3.1 Option B). Three options are considered (Table 4).

The Council may select Option A, B, or C.

Option A. Can hold permits, but not use PSC.[15] A permit holder could retain and renew permits with PSC in excess of the identified accumulation limit. For stocks in excess of the limit, that holder would not be allowed to contribute the excess PSC to a specific sector or to the common pool. PSC holdings in excess of a cap (which are not grandfathered under Section 4.1.3.1 Option B) would have the associated ACE annually redistributed to the rest of the groundfish fishery in the manner described in Framework 45. The PSC associated with all permits would remain unchanged. Thus, when a permit is sold, the full allocation is retained with it.

Rationale: This option would not force the divestiture of permits when holdings exceed the accumulation limit. For a permit that would put the holder in excess of a stock cap, the PSC for other stocks could still contribute to sector ACE or common pool ACL, allowing the permit holder to contribute the (partial) benefits associated with that permit to a sector or the common pool. This option would also allow the full value of a permit to be retained with it when sold.

Option B. Must divest permits.[16] A permit holder cannot retain permits with PSC in excess of the identified accumulation limit. In the event that a permit holder is required to divest permits as a result of this action, adequate time will be provided to do so. In the interim, the PSC holdings in excess of the cap may not be used (fished or leased).

Rationale: This option allows flexibility for the permit holder to dispose of a permit, such that time would be provided to enable the sale of a permit, rather than forcing a holder to not renew a permit. Thus, when a permit is sold, the full allocation is retained with it.

Option C. Can hold permits, but must divest excess PSC.[17] A permit holder could retain and renew a permit with PSC that would result in exceeding the identified accumulation limit; however, the excess PSC must be permanently removed from the permit. The PSC would be redistributed to the rest of the groundfish fishery in the manner described in Framework 45. It would not be used by the purchaser and would no longer be attached to that permit when it is sold.

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[15] In June 2014, the Council voted to add this option to the document.

[16] In June 2014, the Council voted to add this option to the document.

[17] In August 2014, the Committee voted to add this option to the document. This motion will be considered by the Council in November 2014.

Rationale: This option would not force the divestiture of an entire permit when holdings exceed the accumulation limit for certain stocks. For a permit that would put the holder in excess of a stock cap, the PSC for other stocks could still contribute to sector ACE or common pool ACL, allowing the permit holder to contribute the partial benefits associated with that permit to a sector or the common pool. This option would also allow the partial value of a permit to be retained when the permit is sold.

Table 4 - Options for the disposition of current holdings in excess of what is allowed

	Option A	Option B	Option C
Can permits with excess PSC be retained?	Yes	No	Yes
Can the excess PSC be retained?	Yes	n/a	No
Can the excess PSC be used?	No	n/a	n/a

4.1.3.3 Acquisition of Future Holdings

This section pertains to how to treat holdings in the future, after the implementation of this action. Two options are considered (Table 5). See also Section 4.1.5 regarding future federal permit buyouts and buybacks.

The Council may select Option A or B.

Option A. Can hold permits, but not use excess PSC.[18] Subsequent to the implementation of this action, a permit can be purchased with PSC that would result in exceeding the identified accumulation limit. For stocks in excess of the limit, that holder would not be allowed to contribute the excess PSC to a specific sector or to the common pool. PSC holdings in excess of the cap (which are not grandfathered under Section 4.1.3.1) would have the associated ACE annually redistributed to the rest of the groundfish fishery in the manner described in Framework 45. The PSC associated with all permits would remain unchanged. Thus, when a permit is sold, the full allocation is retained with it.

Rationale: This option would not force the divestiture of permits when holdings exceed the accumulation limit. This would enable the acquisition of additional permits. For a permit that would put the holder in excess of a stock cap, the PSC for other stocks could still contribute to sector ACE or common pool ACL, allowing the permit holder to contribute the (partial) benefits associated with that permit to a sector or the common pool. This option would also allow the full value of a permit to be retained with it when sold.

[18] In June 2014, the Council voted to add this option to the document.

Option B. Can hold permits, but must divest excess PSC. [19] Subsequent to the implementation of this action, a permit holder can purchase a permit with PSC that would result in exceeding the identified accumulation limit. However, the PSC holdings in excess of the cap (which are not grandfathered under Section 4.1.3.1) would be permanently split off that permit and PSC would be redistributed to the rest of the groundfish fishery in the manner described in Framework 45. It would not be used by the purchaser and would no longer be attached to that permit when it is sold.

Rationale: This option would allow permit holders to increase the PSC on stocks up to the accumulation limit by acquiring additional permits. This would enable the acquisition of additional permits. This option would not force the divestiture of an entire permit when holdings exceed the accumulation limit for certain stocks. For a permit that would put the holder in excess of a stock cap, the PSC for other stocks could still contribute to sector ACE or common pool ACL, allowing the permit holder to contribute the partial benefits associated with that permit to a sector or the common pool. This option would also allow the partial value of a permit to be retained with it when sold.

Table 5 - Options for the disposition of future holdings in excess of what is allowed

	Option A	**Option B**
Can permits with excess PSC be retained?	Yes	Yes
Can the excess PSC be retained?	Yes	No
Can the excess PSC be used?	No	n/a

[19] In August 2014, the Committee voted to add this to the document. This motion will be considered by the Council in November 2014.

4.1.4 Limit the Holdings of Permits

4.1.4.1 Alternative 1: No Action

No action. Do not limit the holdings of permits by individuals or entities.

Rationale: There is no federal requirement to implement accumulation limits for the fishery. However, NMFS does need to ensure that the FMP complies with National Standard 4 (Section 3.5.1.1). The absence of an accumulation limit would allow the market to determine the efficient concentration of holdings for the fishery.

4.1.4.2 Alternative 2: Limiting the Holdings of Permits[20]

For any single fishing year, no individual or entity shall hold more than 5 percent of the Northeast Multispecies permits. This includes permits issued to vessels and eligibilities in Confirmation of Permit History. If an individual or entity held more than 5% of the permits on the control date (April 7, 2011), they would be restricted to holding no more than the number of permits they held as of the control date.

Rationale: This alternative would establish an accumulation limit for the multispecies fishery that constrains the number of Northeast Multispecies permits held (to 5%) by any individual or entity. Since PSC is allocated to the Moratorium Right Identifier (MRI) number associated with each multispecies permit, it is the number of MRIs that would be limited. Within the NMFS data system, holdings of MRIs would be simpler to track than permits. Because of the grandfathering provision, this alternative would not force divestiture. Additionally, with ~1,400 MRIs currently in the fishery, a 5% cap would be equivalent to ~70 MRIs. The most MRIs held by an individual or entity today is 49 (Section 0).

4.1.5 Future Adjustment of Accumulation Limit

If an accumulation limit is implemented through this action, it may be modified in a future framework due to a federal permit buyback or buyout.[21]

Rationale: During the development of this action, the NMFS Greater Atlantic Regional Fisheries Office was convening the Northeast Multispecies Disaster Funding Vessel Buyout/Buyback Working Group, comprised of federal, state and industry representatives. The Group was developing potential for a federal permit buyback or buyout. However, no specifics of a plan have been finalized. This provision would enable the impact of a federal permit buyback or buyouts to be considered in a future adjustment of an accumulation limit through a framework action.

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[20] In June 2013, the Committee voted to develop an accumulation limit for entities other than permit banks to have a holdings interest in no more than 5% of Northeast multispecies permits, grandfathered to the control date (April 7, 2011). The Committee also voted to develop a permit cap for permit banks, but in April 2014, voted to treat all individuals and entities the same under the alternatives, including the 5% permit cap alternative.

[21] In September 2014, the Committee voted to add this provision to the document. This motion will be considered by the Council in November 2014.

4.2 TRADING U.S./CANADA TACS[22]

Note: The current Transboundary Management Guidance Committee (TMGC) Quota Trading Mechanism Guiding Principles are included in Appendix I.

4.2.1 Alternative 1: No Action

No action. The Regional Administrator (RA) may adjust the U.S./Canada quotas (EGB cod, EGB haddock and GB yellowtail flounder) during FY2014, i.e. after allocations were made. Additional quota would be allocated consistent with the current ABC distribution (i.e., sectors, common pool, scallops, small-mesh fisheries), which would include both groundfish and nongroundfish vessels. The RA would not have the authority to change the allocation distribution to the sub-ACLs during the FY. The RA's authority would be time limited and only exist for trades made by or before the end of the 2014 fishing year. Prior to changing measures, the NMFS would consult with the Council and would advise the Council what measures were under consideration.

Rationale: The difference in fishing years between the U.S. (May-April) and Canada (January-December) groundfish fisheries would require adjustments to occur in adjacent years. This measure would allow an adjustment to occur as soon as possible to the end of the Canadian fishing year, potentially providing additional quota for limiting U.S./Canada stocks. The RA's authority would be time limited and only exist for trades made by or before the end of FY2014, to determine if trades between the U.S. and Canada are practical under this approach.

For example, if the U.S. receives additional yellowtail flounder TAC in FY2014, and trades away a portion of its FY 2015 haddock TAC, the Regional Administrator would increase the FY2014 U.S. TAC for yellowtail flounder in-season consistent with the current process. The adjustment to the FY 2015 U.S. TAC for haddock would be made as part of the process for establishing TACs.

4.2.2 Alternative 2: Allow In-season Trades of U.S./Canada Stocks

The Regional Administrator would be allowed to adjust the U.S./Canada TACs for the transboundary GB stocks (Eastern GB cod, Eastern GB haddock, and GB yellowtail flounder), consistent with any trade agreed upon with Canada, during the fishing year. Prior to a trade, NMFS would consult with the Council and would advise the Council what trades were under consideration. Any trade between the U.S. and Canada would also be approved by the appropriate U.S./Canada management body (i.e., the Transboundary Management Guidance Committee and/or U.S./Canada Steering Committee). Table 6 contains a possible in-season trading timeline. Two options are considered.

The Council may select Option A and B.

[22] In June 2014, the Council voted to approve the Range of Alternatives for Section 4.2. In September, the Committee voted to move Section 4.2 to Considered but Rejected. This motion will be considered by the Council in November 2014.

Option A. Allow in-season trades of sector sub-ACL[23]

Only the quota of the overall sector sub-ACL would be traded away and received as a result of a trade with Canada. Any changes to the overall sector sub-ACL would be applied to sectors based on the cumulative PSCs for the respective stock held by each sector.

Rationale: This option would apply any trade to only the commercial groundfish sector fishery component, with quota given/received only distributed to the overall sector sub-ACL. This would ensure that only the component of the fishery trading away quota would benefit from any additional quota received from Canada. This mechanism would increase flexibility for the sector fishery by potentially providing additional quota for limiting stocks, which could increase fishing opportunities for sector vessels.

For example, if the U.S. receives 50 mt of yellowtail flounder quota in FY 2015, and gives Canada 100 mt of haddock for FY 2016:

- The overall sector sub-ACL for GB yellowtail flounder would be increased in-season by 50 mt for FY 2015, and the additional quota would be distributed to each sector based on the cumulative PSCs for GB yellowtail flounder in that sector; and
- The overall sector allocation for GB haddock that is specified to the Eastern U.S./Canada Area would also be reduced by 100 mt for the upcoming fishing year (FY 2016) consistent with the trade (Note: This would reduce the total U.S. TAC for eastern GB haddock for FY 2016, but the reduction would only be applied to the overall sector allocation.).

Option B. Allow in-season trades of sector ACE[24] *(*Committee *-recommended Preferred Alternative)*

Any groundfish sector may voluntarily participate in a trade with Canada. A sector(s) could choose to contribute to a trade with Canada by notifying the Regional Administrator how much of its ACE for any U.S./Canada stock it was willing to provide. Only sectors in compliance with the necessary reporting and administrative requirements would be permitted to participate in any trades with Canada. The Regional Administrator would then propose this trade with Canada. If approved, the sector(s) would receive the ACE that results from the trade.

Rationale: This option would apply any trade to only the groundfish sectors that voluntarily participate in a trade by contributing ACE of the respective stock. This option would ensure that only the sectors that agreed to participate would be affected by any trade with Canada. This option increases flexibility for sectors, and allows sectors to contribute as little, or as much, ACE as desired towards any trade with Canada. This provides sectors the ability to maximize the benefits of the U.S./Canada trading process by increasing quota for limiting stocks as much as possible in order to increase fishing opportunities for their vessels.

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[23] In August 2013, the Committee agreed by consensus to include this alternative in Framework 51. In December 2013, the Council voted to include this alternative in Amendment 18.

[24] In September 2013, the Council voted to include this option. In December 2013, the Council voted to consider this alternative in Amendment 18.

For example, if the U.S. receives 50 mt of yellowtail flounder quota in FY2015, and gives Canada 100 mt of haddock quota for FY2015:

- For those sectors that contributed haddock ACE to the trade, their ACE of GB yellowtail flounder for FY2015 would be increased proportional to the amount of haddock ACE contributed by that sector; and
- For each sector that voluntarily contributed haddock ACE, the sector's ACE of GB haddock that is specified for the Eastern U.S./Canada Area for FY 2015 would be reduced by the amount contributed.

Table 6 - Possible in-season U.S./Canada quota trading timeline

Month	Canada	U.S.
September	Request for trade made by Canada and/or U.S. through Transboundary Steering Committee (including species, ratio, quantities)	
		U.S. receives further input on proposed trade from Council and sectors
October	Canada receives further input on proposed trade from Gulf of Maine Advisory Committee (GOMAC); Proposal forwarded to Groundfish fleet to determine level of interest	
	U.S. or Canadian Co-Chair responds to proposed trade; (accept/counter/decline)	
November/ December	If U.S. counters, Canada receives further input on offer from Gulf of Maine Advisory Committee (GOMAC)	If Canada counters, U.S. receives further input on offer from Council and sectors
	Counter offer accepted or declined	
	Final approval of quota trade by Minister.	NMFS publishes notice in Federal Register of revised U.S./Canada TACs for current fishing year; revisions to U.S./Canada TACs for upcoming fishing year incorporated into Council action
January	**Start of Canadian fishing year**	
May		**Start of U.S. fishing year**
Note: Canada's GOMAC only meets at specified times of the year (typically March and October).		

4.3 HANDGEAR A PERMIT FISHERY[25]

4.3.1 Alternative 1: No Action

No action. Holders of Handgear A multispecies permits would continue to have the choice of enrolling in the common pool or a groundfish sector (including forming a sector) and be subject to current regulations accordingly. The discard rate for vessels fishing with HA permits in the common pool is calculated based on observed trips using trawls or gillnets, not handgear.

4.3.2 Alternative 2: Establish a Fishery for Handgear A Permits[26]

Under this alternative, a new groundfish fishery component and sub-ACL would be created for Handgear A (HA) multispecies permits, which would be distinct from the common pool or sectors. Holders of HA permits may opt to enroll in the HA fishery, sectors, or the common pool. This HA fishery would be subject to the following provisions:

The Council may select one or more of the following options:

Option A: Handgear A permit sub-ACL

Under this option, a sub-ACL would be created for HA permits, allocating the HA permit catch history (i.e., PSC) for Gulf of Maine cod, Georges Bank cod, Gulf of Maine haddock, Georges Bank haddock, and pollock. The catch history qualification years would remain consistent with current PSC calculation methods. This sub-ACL would only be used by HA fishermen. Holders of HA permits may elect to enroll in the HA fishery, the common pool, or a sector. The PSC from HA permits would contribute to whichever sub-ACL their permit is enrolled in. Those electing to enroll in the HA fishery would be limited to fishing in a single broad stock area for the fishing year and must declare which stock area they are going to fish in at the beginning of each year.

Rationale: This option would create a new sub-ACL fishery component specifically for a HA fishery for five stocks. Permits must be fished (and leased within the sub-ACL they are assigned to; the sub-ACL of one fishery component may not be used by another fishery component. Limiting fishing to a single broad stock area for the fishing year would enable the HA permit holders to be exempt from VMS requirements (Option I). The HA fishery would be too small for NMFS to track where they are going during a trip, one use of VMS.

To illustrate what a potential HA fishery might look like in the future, Table 7 and Table 8 show what a hypothetical sub-ACL for a HA fishery might look like for the five stocks under consideration. The table takes the FY2014 PSC associated with all HA permits and calculates what a sub-ACL would be for FY2014, based on the Council's recommended ABCs and ACLs for FY2014 (NEFMC 2014a). If enrollment in the HA fishery is voluntary, it is unknown how

[25] In June 2014, the Council voted to approve the Range of Alternatives for this section.

[26] In January 2014, the Council voted to add Alternative 2 and revised the options in April and June 2014.

many HA permit holders would choose this new option vs. sectors or the common pool. Because FY2014 sector enrollment will not be final until after the start of the fishing year, the grouping of HA PSC into common pool and sectors in Table 7 is based on FY2013 enrollment. "Potential FY2014 HA sub-ACL" assumes 100% enrollment of HA permits in the HA fishery. It would be a hypothetical maximum. A hypothetical HA fishery in FY2014 would have maximum possible sub-ACLs that are likely to be ≤0.73% of the commercial sub-ACL for each of the five stocks, with the lowest being GOM haddock at 546 lbs. These hypothetical sub-ACLs are ≤30% of the FY2013 annual sub-ACLs for the common pool.

Option B: Discards

This option identifies how discards would be accounted for. Under this option, stocks that would not have a specific HA permit sub-ACL, but are caught using a HA permit, would be accounted for under the Other Sub-components sub-ACLs.

Rationale: The stocks not assigned to the HA fishery sub-ACL under Option A are not commonly targeted by HA fishermen. Recent catch data for HA permits is provided in Section 6.5.8.

The Council may select sub-Option A or B.

> **Sub-Option A:** Calculate an annual discard rate based on available data for longline and hook gear. At the beginning of the fishing year, estimated discards would be subtracted from the HA fishery sub-ACL (for GOM cod, GB cod, GOM haddock, GB haddock, and pollock) and the Other Sub- Components sub-ACL (for all other stocks) accordingly.

Rationale: This approach bases the discard rate on data from gear similar to what would be used in the HA fishery. Since there would be no in-season observer trips, the discard rate would be the same for the whole year and set at the beginning of the fishing year. Only landings would be monitored throughout the year.

> **Sub-Option B:** Assume all discards from trips fishing within the HA fishery to be *de minimus*, and not account for them under any sub-ACL. This sub-option would require the *de minimus* discards to be explicitly considered within the management uncertainty buffer for each stock.

Rationale: The discards from a potential HA fishery are likely to be very small, well within the management uncertainty buffer of the commercial fishery. The discards of Gulf of Maine cod from handgear were 0.14% - 1.2% of the total commercial discards between FY2010-2012 (Table 49). This HA discard data was calculated based on discards from trawl and gillnets, and thus, is likely larger than actual discards.

Table 7 – Hypothetical Handgear A sub-ACL based on FY2014 PSC, by stock

			Common Pool HA			Sectors HA			**Total HA**		
	Preliminary commercial groundfish FY2014 sub-ACL		Total FY2014 HA PSC	Potential FY2014 HA sub-ACL		Total FY2014 HA PSC	Potential FY2014 HA sub-ACL		**Total FY2014 HA PSC**	**Potential FY2014 HA sub-ACL**	
	mt	lbs		mt	lbs		mt	lbs		**mt**	**lbs**
GOM cod	830	1,829,837	0.003814941	3.2	6,981	0.003527420	2.9	6,455	**0.007342361**	**6.1**	**13,435**
GOM haddock	220	485,017	0.001044610	0.2	507	0.000081935	0.0	40	**0.001126545**	**0.2**	**546**
GB cod	1,769	3,899,757	0.001555739	2.8	6,067	0.000168270	0.3	656	**0.001724010**	**3.0**	**6,723**
GB haddock	17,171	37,856,671	0.000148649	2.6	5,627	0.000016415	0.3	621	**0.000165064**	**2.8**	**6,249**
Pollock	13,224	29,153,930	0.000650768	8.6	18,972	0.001458137	19.3	42,510	**0.002108905**	**27.9**	**61,483**

Notes:
The sub-ACLs are based on Council's recommended FY2014 ABC and ACL. Because FY2014 sector enrollment will not be final until after the start of the fishing year, the grouping of HA PSC into common pool and sectors is based on FY2013 enrollment.

Table 8 - Potential FY2014 HA sub-ACL relative to the FY2014 groundfish sub-ACL and FY2013 cumulative discards of sectors and the common pool

	Potential FY2014 HA sub-ACL (mt)	**% of FY2014 groundfish sub-ACL**	**% of FY2013 cumulative discard of sectors and common pool[1]**
GOM cod	6.1	0.73%	31%
GOM haddock	0.2	0.11%	1.1%
GB cod	3.0	0.17%	6.5%
GB haddock	2.8	0.02%	1.3%
Pollock	27.9	0.21%	26%

[1] FY2013 cumulative discards from:
http://www.nero.noaa.gov/ro/fso/reports/Sectors/Commercial_Summary_2013.html

Option C: Proactive accountability measures

Under this option, a proactive accountability measure (AM) would be established for the HA fishery. To prevent overages proactively, trip limits for each stock allocated in the sub-ACL would be set in specifications by the Regional Administrator to prevent overage.

Rationale: This AM would ensure that there are sufficient measures in place to prevent overages of sub-ACLs. Adopting AMs for the HA fishery also ensures that overages caused by the HA fishery would not negatively impact other components of the fishery. Triggering the Handgear AMs based on an overage of the sub-ACL, regardless of whether the total ACL is exceeded, is consistent with how other fisheries are treated (with the exception of the scallop fishery's AM for GB yellowtail flounder). Having AMs linked to each sub-ACL ensures that each fishery component is held responsible for its catch.

The Council may select sub-Option A or B.

Sub-Option A: When 100% of the HA sub-ACL is reached for a stock, the HA fishery for that stock would close and all vessels fishing under the HA fishery would be subject to a zero possession limit for that stock for the remainder of the fishing year.

Rationale: If the sub-ACL is reached for a stock, this approach would allow the HA vessels to continue fishing on other stocks. This approach is different than the current sector and common pool regulations, where if the sub-ACL is reached for a stock, the stock area closes.

Sub-Option B: When 90% of the HA sub-ACL is reached for a stock, the HA fishery for that stock would close and all vessels fishing under the HA fishery would be subject to a zero possession limit for that stock for the remainder of the fishing year.

Rationale: If the sub-ACL is reached for a stock, this approach would allow the HA vessels to continue fishing on other stocks. Given the small sub-ACLs of a potential HA fishery, the difference between determining when 90% vs 100% is reached would be very difficult, and could still result in overages. This approach is different than the current sector and common pool regulations, where if the sub-ACL is reached for a stock, the stock area closes.

Option D: Reactive accountability measures

Under this option, a reactive accountability measure (AM) would be established for the HA fishery. Reactively, an overage in the sub-ACL for a stock would be subtracted from the sub-ACL in the fishing year following notification of the overage.

Rationale: These AMs would ensure that there are sufficient measures in place to prevent overages of sub-ACLs. Because of the timing of availability of data for this fishery, the reactive AM would be implemented in the fishing year following the notification of the overage. Adopting AMs for the HA fishery also ensures that overages caused by the HA fishery would not negatively impact other components of the fishery. Triggering the Handgear AMs based on an overage of the sub-ACL, regardless of whether the total ACL is exceeded, is consistent with how other fisheries are treated (with the exception of the scallop fishery's AM for GB yellowtail

flounder). Having AMs linked to each sub-ACL ensures that each fishery component is held responsible for its catch.

The Council may select sub-Option A or B.

> **Sub-Option A:** Reactive AMs would be triggered if the HA fishery sub-ACL is exceeded.

Rationale: The HA sub-ACL would be accountable for every pound of its overage. This approach would be consistent with the current approach for the sectors and common pool.

> **Sub-Option B:** Reactive AMs would be triggered if the HA fishery sub-ACL and the total ACL are exceeded.

Rationale: Any HA sub-ACL overage would likely be very small relative to the total groundfish ACL. Several of the recently adopted sub-ACLs (e.g., small mesh) are triggered only when the sub-ACL and the total ACL are exceeded. This sub-Option would be consistent with that.

Option E: Carryover

Under this option, unused HA sub-ACL would be carried over from one fishing year to the following fishing year, up to a limit of 10% of the unused sub-ACL.

Rationale: Currently, sectors are allowed to transfer up to 10% of unused sub-ACL to the following fishing year, and sectors are not allowed to carryover stocks managed by the US/Canada Resource Sharing Agreement (EGB cod, EGB haddock and GB yellowtail flounder). It is assumed that the accountability for the carryover would be consistent with current practice for sectors. Thus this catch, if used in the following year, would not be attributed to the sub-ACL for overage determination unless the total ACL is exceeded in that year. In a year where there was additional catch due to carryover, if the total ACL is exceeded and the HA sub-ACL is exceeded, the HA fishery would be required to repay the carried over catch used. Most sectors elect to set aside 10% of their ACE at the beginning of the fishing year to help prevent overages, which if unused, they can then carry over in the next fishing year. Under this option, the HA fishery would not have a set-aside upfront.

Option F: Removal of March 1-20 HA closure

Under this option, the March 1-20 handgear fishing closure would be removed.

Rationale: March 1-20 is a spawning block closure. With the implementation of Amendment 5, all groundfish vessels had a 20-day spawning block that they had to call out for. When VMS was instituted in November 2007 (NOAA 2006), handgear vessels were given March 1-20, because they were not required to use VMS and NMFS would not be able keep track of when these vessels actually called out. Currently, sector vessels are exempted annually from a 20-day spawning block as part of their operations plans, so this measure would be consistent with how sectors are managed.

Option G: Annual sub-ACL

Under this option, the HA fishery would be managed with an annual sub-ACL, rather than a trimester sub-ACL, as the common pool is currently managed.

Rationale: Amendment 16 established that in FY2012, the common pool would be managed with a trimester sub-ACL versus an annual one for all stocks except SNE/MA winter flounder, windowpane flounder, ocean pout, Atlantic wolffish and Atlantic halibut. Then, Framework 48 exempted handgear from the trimester system for white hake. In FY2010 and FY2011, most of the common pool effort occurred within the first three months of the fishing year. This could be due to a preference for fishing in seasonable weather, but there could also be a "race to fish" factor in play. The annual sub-ACLs were not exceeded. Since the implementation of trimesters, the common pool has exceeded its trimester sub-ACLs in a few cases. There are a number of convergent factors that cause managing the common pool quotas by trimesters challenging. For quotas that are as small as those for the common pool trimesters, the current data delivery systems make it difficult to estimate in-season when 90% of the TAC is projected to be reached. The trimester AM is a proactive AM, and it is not necessary to have proactive AMs.

Option H: Removal of standard fish tote requirement

Under this option, vessels operating under a HA permit would no longer be required to carry a standard fish tote on board.

Rationale: In 1994, through an Emergency Rule and subsequently in Amendment 5, standard totes were required of all vessels (Section 6.5.8.3). Over time, this requirement has been removed from most fisheries regulations but still applies in a few instances, including vessels fishing with a Handgear A multispecies permit. Currently, the USCG does not use totes for at-sea enforcement on handgear vessels. Since weights measured dockside are the only ones considered official, issuing a possession limit overage violation based solely on weight estimates made at sea would be untenable.

Option I: Sector exemption from VMS requirements[27]

Under this Option, a sector may request through its annual operations plans that vessels fishing with handgear in the sector may be exempt from the requirement to use the Vessel Monitoring System VMS. Vessels fishing with handgear in a sector must declare trips through the Interactive Voice Response (IVR) system.

Rationale: Currently, all vessels fishing in a sector must use the VMS. Use of VMS is a sector reporting requirement, thus is not currently eligible for a sector exemption request. VMS is used to monitor closed areas and to tie together all data sources for a trip that are used in catch monitoring. Changes to VMS requirements (e.g. an exemption for vessels fishing with HA permits) would require Council action. Vessels fishing with Handgear in the common pool use the IVR system to declare a trip and then submit a Vessel Trip Report upon completion of a trip.

[27] In March and April 2014, the Committee and Council, respectively, voted to add Option J.

Option I would allow the approach currently used for Handgear vessels in the common pool to apply to those fishing in a sector. There are costs associated with purchasing the VMS hardware, satellite connections, and data transmission. Option J could be a lower-cost approach and may thus encourage participation in sectors by handgear vessels.

4.4 DATA CONFIDENTIALITY

Alternatives in this section would potentially revise the data confidentiality policy for the groundfish fishery.

4.4.1 Alternative 1: No Action

No Action. The price of ACE traded between sectors and the movement of ACE within sectors would remain confidential. Other data on ACE trades between sectors (sectors, date of trade, stocks, amount of ACE) is currently posted to the GARFO "Sector ACE Transfer Summary" website (http://www.nero.noaa.gov/aps/monitoring/nemultispecies.html).

Rationale: NMFS has previously determined that ACE price data are not necessary for the administration of the program, and thus, do not warrant an exception from the Magnuson-Stevens Act data confidentiality provisions. Under no action, there would be little incentive for inaccurate price reporting.

4.4.2 Alternative 2: ACE Disposition Data Would be Exempt from the Confidentiality Requirement[28]

Under this alternative, the value associated with the movement of PSC-determined catch allocations (ACE) within and between sectors would be considered non-confidential and made available to the public. Consistent with current data submission timeframes, price data on trades made between sectors would be made available during the fishing year. Price data on the movement of ACE within sectors would be made available after the end of the fishing year.

Rationale: This alternative may promote more transparency in how a public resource is used. Having the price data posted could help fishermen evaluate if they are paying a fair market price for ACE, though some trades have several stocks bundled together.

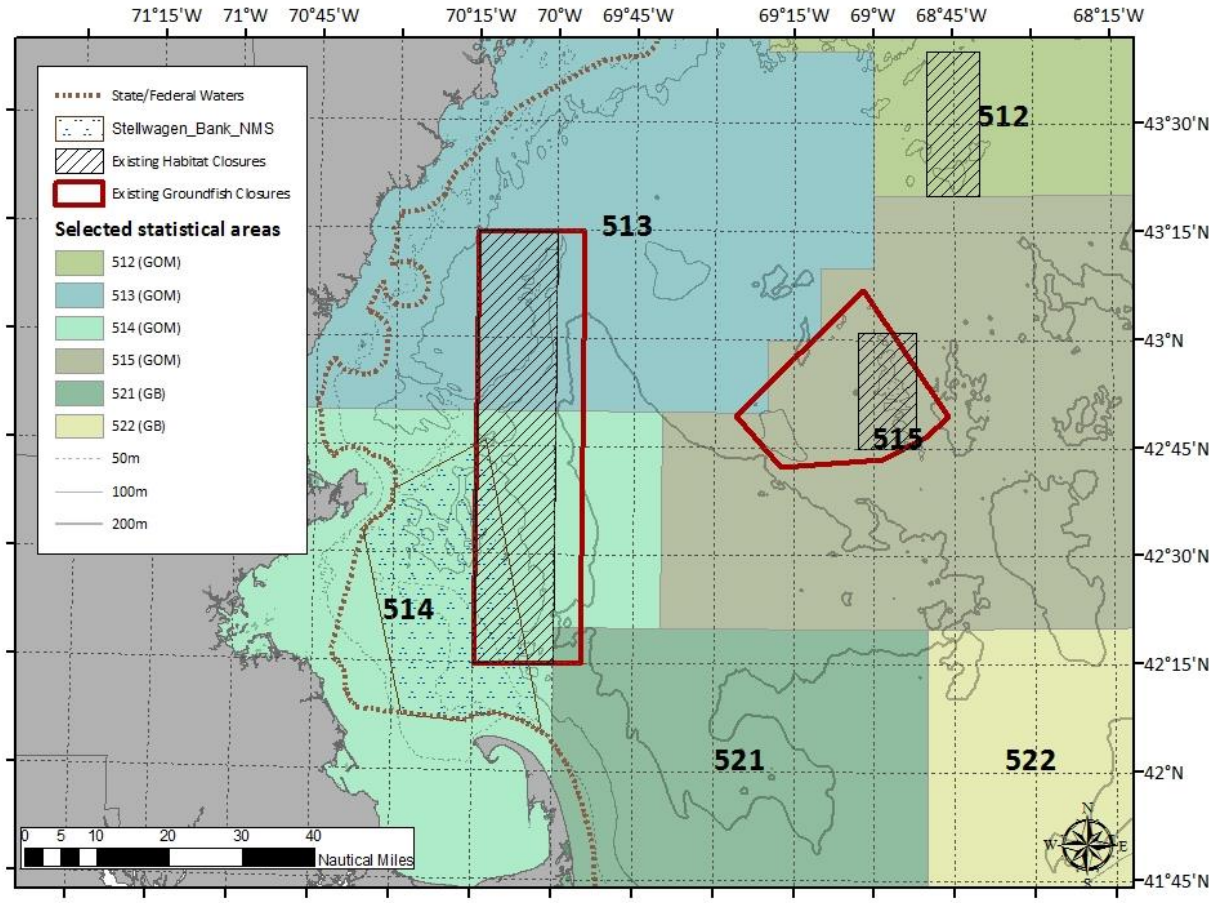
[28] In April 2014, the Council voted to add this alternative.

4.5 INSHORE/OFFSHORE GULF OF MAINE

4.5.1 Inshore/Offshore Gulf of Maine Boundary

Management area boundaries are key elements of the ACL distribution system. They may also be applied to other management measures. Alternatives to divide the existing Gulf of Maine broad stock management area (Figure 1, Figure 6) are identified in this section.

Figure 1 - Map showing statistical areas, existing year-round closures, and the Stellwagen Bank National Marine Sanctuary.



4.5.1.1 Alternative 1: No Action

No action. Do not establish a new inshore/offshore boundary line in the Gulf of Maine.

4.5.1.2 Alternative 2: Establish an Inshore/Offshore Boundary[29]

Establish a new sub-area boundary within the Gulf of Maine Management Area to distinguish between inshore and offshore fishing practices. This action is based on knowledge of the seasonal distribution of juvenile and adult fish within the management area, differences between the inshore and offshore fishing grounds, and the location of known spawning grounds. This boundary may be adjusted through subsequent framework action and would not apply to vessels with only state-water groundfish permits.

Rationale: One of the most important reasons for distinguishing management areas is to avoid over-exploitation of individual spawning components that are included within a stock-complex. The management sub-areas would allow the application of different ACLs or management measures in separate areas. This could provide more flexibility to the management program, as measures do not have to be applied to the entire area when they may be more appropriate in only one area. Because the boundary options considered do not align with statistical reporting area boundaries, additional catch reporting would be necessary to properly assign catch to the inshore and offshore area. This boundary may be adjusted through subsequent framework action, to provide the flexibility to revise management areas as additional information on stock structure is developed or fishing patterns change.

The Council may select Option A, B, or C.[30]

Option A. Establish an inshore/offshore Gulf of Maine boundary at 70°W longitude (Figure 2).

Rationale: This line is just inside the eastern boundary of the Western Gulf of Maine Closed area. It coincides with the eastern boundary of the Western Gulf of Maine Habitat Closure. The line would place the Stellwagen Bank National Marine Sanctuary entirely within the inshore area, and would not divide the fishery near Provincetown, MA to the degree that Option B would.

Option B. Establish an inshore/offshore Gulf of Maine boundary at 70°15'W longitude (Figure 2).

Rationale: This line creates a distinction between the day-boat and the trip boat fleets[31] and coincides with the western boundary of the Western Gulf of Maine Habitat Closure, and would place the Western Gulf of Maine Area Closure and the Western Gulf of Maine Habitat Closure entirely within the offshore area. The line would intersect the Stellwagen Bank National Marine Sanctuary. The industry has designated this line as an inshore/offshore declaration line for reporting purposes, by a few sectors in FY2013, and by all sectors in FY2014 sector ops plans. The area to the west is considered part of Wilkinson Basin, and important to the pollock fishery.

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[29] In September 2014, the Committee voted to remove the language in red from Alternative 2. The intent was to replace it with the language in green. This motion will be considered by the Council in November 2014.

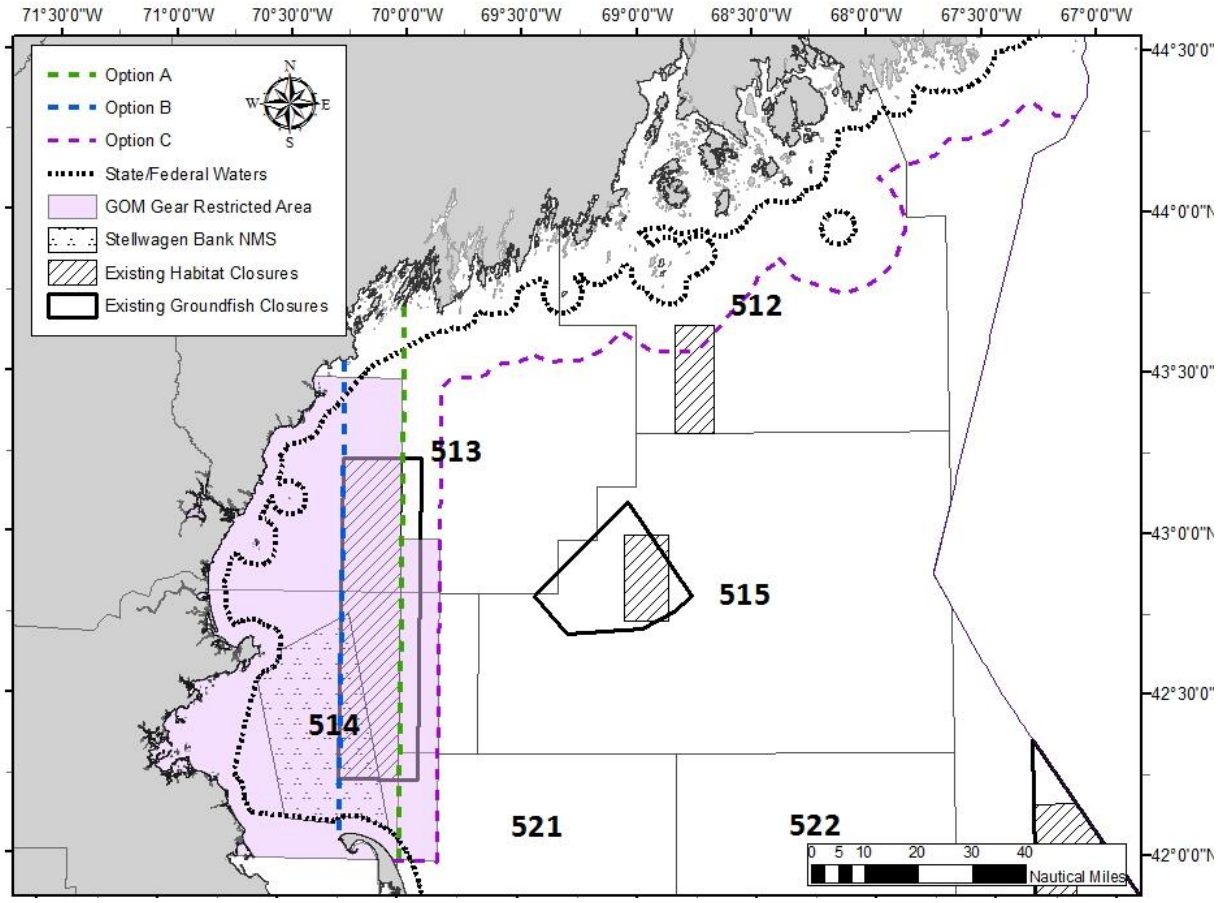
[30] In June 2014, the Council voted to develop a range of alternatives that include Options A and B. In September, the Committee voted to add Option C. This motion will be considered by the Council in November 2014.

[31] In September 2014, the Committee voted to add this concept to the rationale.

Option C. Establish an inshore/offshore Gulf of Maine boundary from where 42°N intersects Cape Cod, Massachusetts, runs east to 69°50'W, runs north along 69°50'W to the 12 nm territorial sea line, then follows Maine's 12 nm territorial sea line northeast to the Hague Line (Figure 2).

Rationale: This line creates a distinction between the day-boat and the trip-boat fleets and coincides with the Gulf of Maine Gear Restricted Area, an existing inshore/offshore delineation for the 12" rockhopper restrictions (implemented through Framework 27 to the Multispecies FMP). This line would place the Gulf of Maine Gear Restricted Area, the Western Gulf of Maine Area Closure, the Western Gulf of Maine Habitat Closure, and the Stellwagen Bank National Marine Sanctuary entirely within the inshore area. Unlike Options A and B, this line would not intersect the Maine coast, thus fishing that occurs along the entire Maine coast would be considered inshore. By using the 12 nm territorial sea line, it would use a boundary line that is already established, rather than create a new line. The State of Maine has jurisdiction of the lobster fishery out to 12 nm.

Figure 2 – Inshore/offshore Gulf of Maine boundary alternatives



Note: The Gulf of Maine Gear Restricted Area would not be impacted by Alternative 2, but is shown for illustrative purposes.

4.5.2 Inshore/Offshore Gulf of Maine cod sub-ACLs

If the Council selects Alternative 2 in Section 4.5.1, then Alternative 2 in this section may be selected.

4.5.2.1 Alternative 1: No Action

No action. Do not establish a sub-ACL within the commercial and recreational ACLs for Gulf of Maine cod in the Gulf of Maine management sub-areas (identified in Section 4.5.1.2) and continue to manage GOM cod with an ACL for the commercial fishery and an ACL for the recreational fishery. No new strata for observer coverage would be created as a result.

Rationale: Creating no new strata would maintain observer coverage requirements and not results in cost increases. The current catch accounting system would continue to be used, and a new more complicated system would not need to be developed.

4.5.2.2 Alternative 2: Establish Inshore/Offshore GOM Cod sub-ACLs[32]

Within the commercial and recreational ACLs for GOM cod, establish a sub-ACL for the inshore and offshore Gulf of Maine management sub-areas, as identified in Section 4.5.1.2. This alternative would change neither the GOM cod ACL setting process nor the ACL distribution between the commercial and recreational fishery. The sub-ACLs would be set during each specifications process. Provisions for a sub-ACL control rule, commercial allocation, and catch monitoring are outlined below. This alternative would not change catch attribution methods for federally-permitted vessels fishing in state waters.

This would create two new strata, increasing observer coverage requirements and the resolution of catch data. Because the sub-area boundaries do not align with Statistical Reporting Areas (SRAs), a new catch accounting system would need to be developed, perhaps akin to that used for the Atlantic herring fishery (combining VTRs, VMS reports and dealer reports). Framework 3 to the Herring FMP describes the data auditing process (NEFMC 2014b; Section 3.6.1).

Rationale: Creating sub-ACLs would better attribute catch to more specific areas within the Gulf of Maine. Limiting this new sub-ACL to just one stock make quota setting, allocations, observer coverage, and catch monitoring easier with lower potential for error than if all groundfish stocks were managed with this sub-ACL. However, there would still be complexities, as this creates a new management program for just one stock in the fishery.

Alternative 2 contains the following options for setting a sub-ACL control rule, and provisions for the commercial allocation and catch monitoring.

[32] In June 2014, the Council voted to add this alternative, though it was not specified to which stocks this alternative would apply.

Determining the GOM cod sub-ACLs

The Council may select Option A, B, or C.

Option A. During each GOM cod specifications process, the Council would determine the control rule to be used at the time to determine the split between the inshore and offshore sub-ACLs. The control rules could be based on cod distribution, catch, different time periods, etc. and may vary between the commercial and recreational fisheries.

Rationale: This option would provide the Council and NMFS with flexibility to adjust the sub-ACLs in the future based on different parameters.

Option B. The split between the inshore and offshore GOM cod sub-ACLs would be set proportional to the level of catch in each sub-area. Two sub-options for the fishing years used to determine the level of catch are considered.

Rationale: Establishing the control rule in advance provides a degree of predictability for the specifications process. This option would ensure that the catch in each area is proportional to the historical catch. Fishing years are used in the sub-options, because catch is calculated on a fishing year basis.

The Council may select sub-Option A or B. [33]

> **Sub-Option A.** The last 10 fishing years prior to the year in which the specifications are developed.

Rationale: In the near-term, Sub-option A would capture the variability before and after FY2010.

> **Sub-Option B.** The last 20 fishing years prior to the year in which the specifications are developed.

Rationale: In the near-term, sub-option B would capture a longer period of variability than Sub-option A, including that before and after FY2010.

Option C. The split between the inshore and offshore GOM cod sub-ACLs would be set proportional to the level of fish distribution in each area. The control rule would be the same for the commercial and recreational fishery. Two sub-options for the calendar years used to determine the level of fish distribution are considered.

Rationale: Establishing the control rule in advance provides a degree of predictability for the specifications process. This option would ensure that the catch in each area is proportional to the distribution of Gulf of Maine cod between each area. Because this rule is based on stock distribution, it would be the same for the commercial and recreational fisheries. Calendar years are used in the sub-options, because stock assessments are performed on a calendar year basis.

The Council may select sub-Option A or B.[34]

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[33] In August 2014, the Committee voted to include the two sub-options under Options B and C. This motion will be considered by the Council in November 2014.

Sub-Option A. The last 10 calendar years prior to the year in which the specifications are developed.

Rationale: In the near-term, Sub-option A would capture the variability before and after FY2010.

Sub-Option B. The last 20 calendar years prior to the year in which the specifications are developed.

Rationale: In the near-term, sub-option B would capture a longer period of variability than Sub-option A, including that before and after FY2010.

Commercial Allocation[35]

The distribution of allocation within the commercial fishery would remain unchanged. The catch history qualification years would remain consistent with current PSC calculation methods. For example, if the GOM cod PSC associated with a permit is 1.0, then the PSC for each sub-ACL would also be 1.0.

Rationale: Alternative 2 would not involve reallocating the fishery.

Commercial Catch Monitoring[36]

With an observer or monitor: If a commercial trip carries an observer or monitor, the vessel may declare into and fish in both the inshore and offshore areas.

Without an observer or monitor: Commercial vessels would be prohibited from fishing in both the inshore and offshore Gulf of Maine areas on a single trip without an observer (or electronic monitoring technology, should such be approved in the future) which can correctly attribute catch to each area. Vessels could only fish in a single area on a given trip. If the vessel wishes to fish in the inshore area, the vessel must declare and execute its intent to fish in the inshore area exclusively for the trip. Declarations would be made to the sector manager via the Trip Start Hail. Without an observer or monitor, if the vessel declares into more than one Broad Stock Area on the trip (e.g., Georges Bank and Gulf of Maine), the vessel is prohibited from fishing in the inshore GOM Area. Recreational vessels, which are not monitored, could only fish in one sub-area on a given trip.

Rationale: Alternative 2 would promote more fine-scale attribution of catch within the Gulf of Maine (to the sub-areas) relative to no action. Monitoring would be required for fishing in both sub-areas on a given commercial trip, because it would be very difficult to attribute catch to the two sub-areas without monitoring. This provision is designed similar to the Inshore Gulf of

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[34] Ibid.

[35] In August 2014, the Committee considered this provision developed by the PDT and did not develop any revisions or alternate approaches.

[36] In June 2014, the Council voted to include this provision and apply it to commercial and recreational vessels. In September 2014, the Committee voted to apply it to just commercial vessels and apply the concept from Section 4.5.4.1.4 Option B to all the alternatives in Section 4.5 (besides no action). This motion will be considered by the Council in November 2014.

Maine Declaration Plan that has been developed by sectors and is included in the FY2014 operations plans for all sectors. For monitored trips, this option would provide flexibility to be able to fish in both sub-areas on a single trip.

Catch Reporting[37]

For both commercial and recreational vessels, reporting measures would be established to accurately attribute catch to the inshore and offshore GOM areas.

4.5.3 Gulf of Maine Gear Restricted Area

If the Council selects Alternative 2 in Section 4.5.1, then Alternative 2 in this section may be selected.

4.5.3.1 Alternative 1A: Current No Action

No action. Do not revise the current Gulf of Maine Gear Restricted Area. In Figure 3, the polygon in aqua is the current trawl roller area (12" max) for all trawls fishing under groundfish FMP (i.e., not shrimp or monkfish).

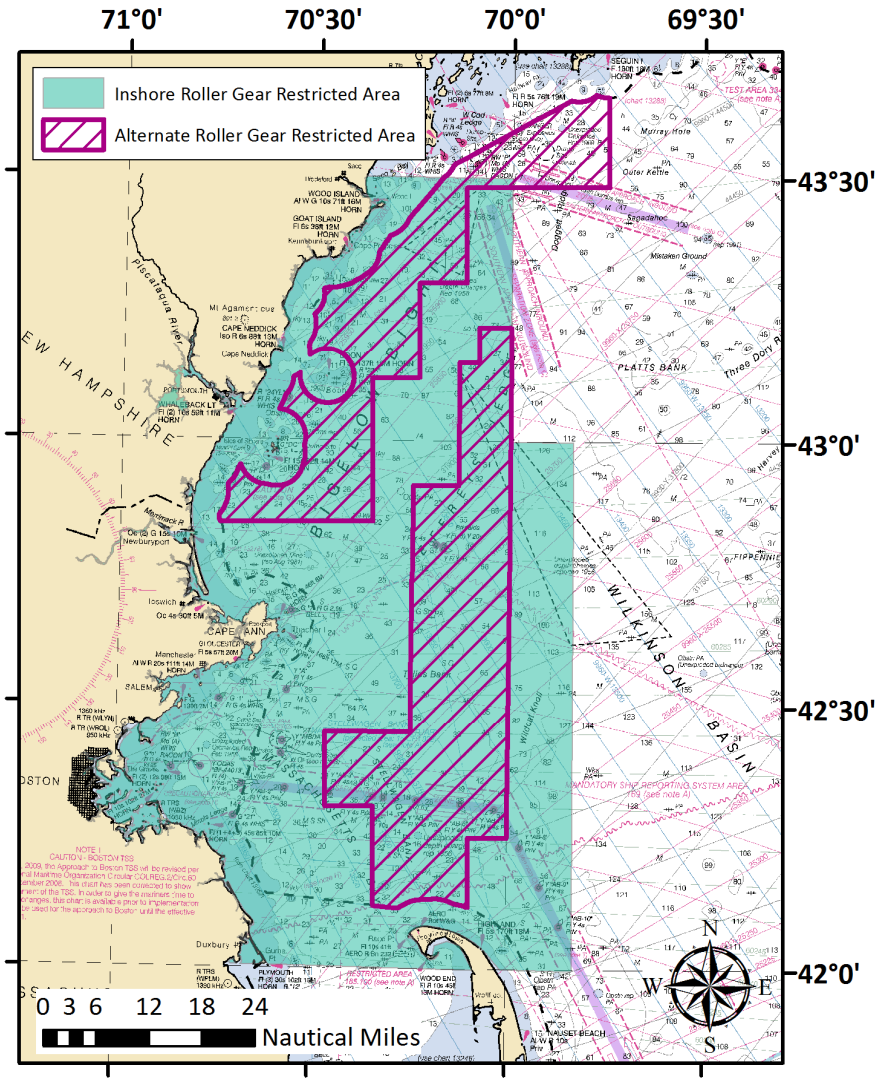
Rationale: This gear restriction was implemented through Framework 27 to the Multispecies FMP primarily to reduce GOM cod mortality, though limiting trawl activity on complex habitat was discussed.

4.5.3.2 Alternative 1B: Potential No Action

No action (potentially). The Habitat Omnibus Amendment 2 is contains alternatives that may revise the Gulf of Maine Gear Restricted Area. The no action alternative may change pending measures implemented through the habitat action. In Figure 3, the restricted area would change to those identified by the pink polygons. Additionally, the gear restriction would apply to all trawl gear. However, the Council had not identified changing the area geographically as a preferred alternative.

[37] In September 2014, the Committee voted to add this provision to the document. This motion will be considered by the Council in November 2014.

Figure 3 - No action alternatives 1 (aqua) and 1A (pink) for the gear-restricted area



Source: Habitat Omnibus Amendment 2.

4.5.3.3 Alternative 2: Revise Gulf of Maine Gear Restricted Area[38]

Revise the Gulf of Maine Gear Restricted Area to be consistent with the boundary alternative (and option) selected in Section 4.5.1.2. With either boundary alternative, this area would be smaller than the current No Action alternative (Section 4.5.3.1).

Rationale: By making the Gulf of Maine Gear Restricted Area boundary consistent with the inshore/offshore boundary, this option may be easier to administer and enforce relative to either the current or potential No Action alternatives.

[38] In August 2014, the Committee considered this alternative developed by the PDT and did not develop any revisions or alternate approaches.

4.5.4 Declaration Time Periods for the Commercial Fishery[39]

If the Council selects Alternative 2 in Section 4.5.1, then Alternative 2, 3 or 4 in this section may be selected.

4.5.4.1.1 Alternative 1: No Action

No action. Do not specify time periods for which a commercial vessel must declare into or out of one of the Gulf of Maine management sub-areas, as defined in Section 4.5.1.2.

Rationale: This alternative would not create fishing declaration time periods for the commercial fishery. Vessels could continue to choose to fish in either or both areas on the same trip and at any point throughout the year. This alternative would involve less reporting than the other alternatives in this section, though existing reporting requirements would remain unchanged.

4.5.4.1.2 Alternative 2: Annual Declaration

For each fishing year, commercial vessels must declare their intent to fish in either the inshore or the offshore Gulf of Maine management sub-area, as defined in Section 4.5.1.2. Vessels would need to choose whether they would fish for GOM cod entirely within the inshore or offshore GOM area for a given fishing year. Vessels can only fish in the non-declared area on a non-groundfish trip when declared out of the fishery. If a vessel elects to declare into the offshore GOM cod area, the inshore GOM cod ACE associated with its permits could be leased to sectors that have vessels declared into the inshore area. The converse for offshore GOM cod is also true.

Rationale: This alternative would aid in catch attribution to the inshore and offshore areas by creating declaration time periods on an annual basis for the commercial fishery. Vessels can only fish in the non-declared area on a non-groundfish trip, because there is a chance that cod could be caught on a groundfish trip. There would be no change to the leasing provisions; allowing ACE to be traded would provide a mechanism for ACE to be obtained.

4.5.4.1.3 Alternative 3: Seasonal Declaration

For each trimester as defined below, commercial vessels must declare their intent to fish in either the inshore or the offshore Gulf of Maine management sub-area, as defined in Section 4.5.1.2. Vessels would need to choose whether they would fish for GOM cod entirely within the inshore or offshore GOM area for a given season. Vessels can only fish in the non-declared area on a non-groundfish trip when declared out of the fishery. If a vessel elects to declare into the offshore GOM cod area, the inshore GOM cod ACE associated with its permits could be leased to sectors that have vessels declared into the inshore area. The converse for offshore GOM cod is also true.

Trimester 1: May 1 – August 31

Trimester 2: September 1 – December 31

Trimester 3: January 1 – April 30

[39] In August 2014, the Committee agreed by consensus to develop commercial declaration time period alternatives at the trip level or higher. The Committee did not develop alternatives that would apply to the recreational fishery.

Rationale: This alternative would aid in catch attribution to the inshore and offshore areas by creating declaration time periods on a trimester basis for the commercial fishery. Vessels can only fish in the non-declared area on a non-groundfish trip, because there is a chance that cod could be caught on a groundfish trip. There would be no change to the leasing provisions; allowing ACE to be traded would provide a mechanism for ACE to be obtained. Seasonal declarations would provide more flexibility than annual declarations for the fleet to choose in which sub-area to fish for groundfish.

4.5.4.1.4 Alternative 4: Trip Declaration

For each trip, vessels would need to choose whether they would fish for GOM cod entirely within the inshore or offshore GOM area for the trip. Vessels can only fish in the non-declared area on a non-groundfish trip when declared out of the fishery. If a vessel elects to declare into the offshore GOM cod area, the inshore GOM cod ACE associated with its permits could be leased to sectors that have vessels declared into the inshore area. The converse for offshore GOM cod is also true.

Rationale: This alternative would aid in catch attribution to the inshore and offshore areas by creating declaration time periods on a trip by trip basis for the commercial fishery. Vessels can only fish in the non-declared area on a non-groundfish trip, because there is a chance that cod could be caught on a groundfish trip. There would be no change to the leasing provisions; allowing ACE to be traded would provide a mechanism for ACE to be obtained. Trip level declarations would provide more flexibility than seasonal or annual for the fleet to choose in which sub-area to fish for groundfish.

The Council may select Option A or B.[40]

Option A. For each commercial trip, vessels must declare their intent to fish in either the inshore or the offshore Gulf of Maine management sub-area, as defined in Section 4.5.1.2.

Rationale: This alternative would help improve catch attribution to the inshore or offshore area.

Option B. If a commercial trip carries an observer or monitor, the vessel may declare into and fish in both the inshore and offshore areas, as defined in Section 4.5.1.2. If the trip does not carry an observer or monitor, and the vessel wishes to fish in the inshore area, the vessel must declare and execute its intent to fish in the inshore area exclusively for the trip. Declarations would be made to the sector manager via the Trip Start Hail. Without and observer or monitor, the vessel can declare into more than one Broad Stock Area on the trip, but the vessel is prohibited from fishing in the inshore GOM Area.

Rationale: This option mirrors the Inshore Gulf of Maine Declaration Plan that has been developed by sectors and is included in the FY2014 operations plans for all sectors. This alternative would help improve catch attribution to the inshore or offshore GOM area. For monitored trips, this option would provide flexibility to be able to fish in both sub-areas on a single trip.

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[40] In September 2014, the Committee voted to remove these two options and apply the concept of Option B to all the alternatives in Section 4.5 (besides no action; see p. 57). This motion will be considered by the Council in November 2014.

4.6 REDFISH EXEMPTION AREA

4.6.1.1 Alternative 1: No Action

No Action. Sectors can be given universal exemptions from groundfish regulations. One of these exemptions allows vessels to use smaller mesh to target redfish than the currently required 6.5" minimum groundfish mesh. NMFS has approved a few different versions of this exemption, but for FY 2014, vessels may use a 6" mesh codend in the area outlined in Table 9 and Figure 4. Vessels would be subject to the standard groundfish monitoring coverage levels. Common pool vessels are not allowed to fish with this exemption.

Rationale: Maintaining this provision as a sector exemption would allow NMFS to determine annually if such an exemption is appropriate for groundfish sectors in a given fishing year, and/or if it could potentially be modified in response to a management need or opportunity (e.g., improved catch efficiency). The area was recently revised to include additional deep water and a northern boundary that protects juvenile groundfish in shallower water.

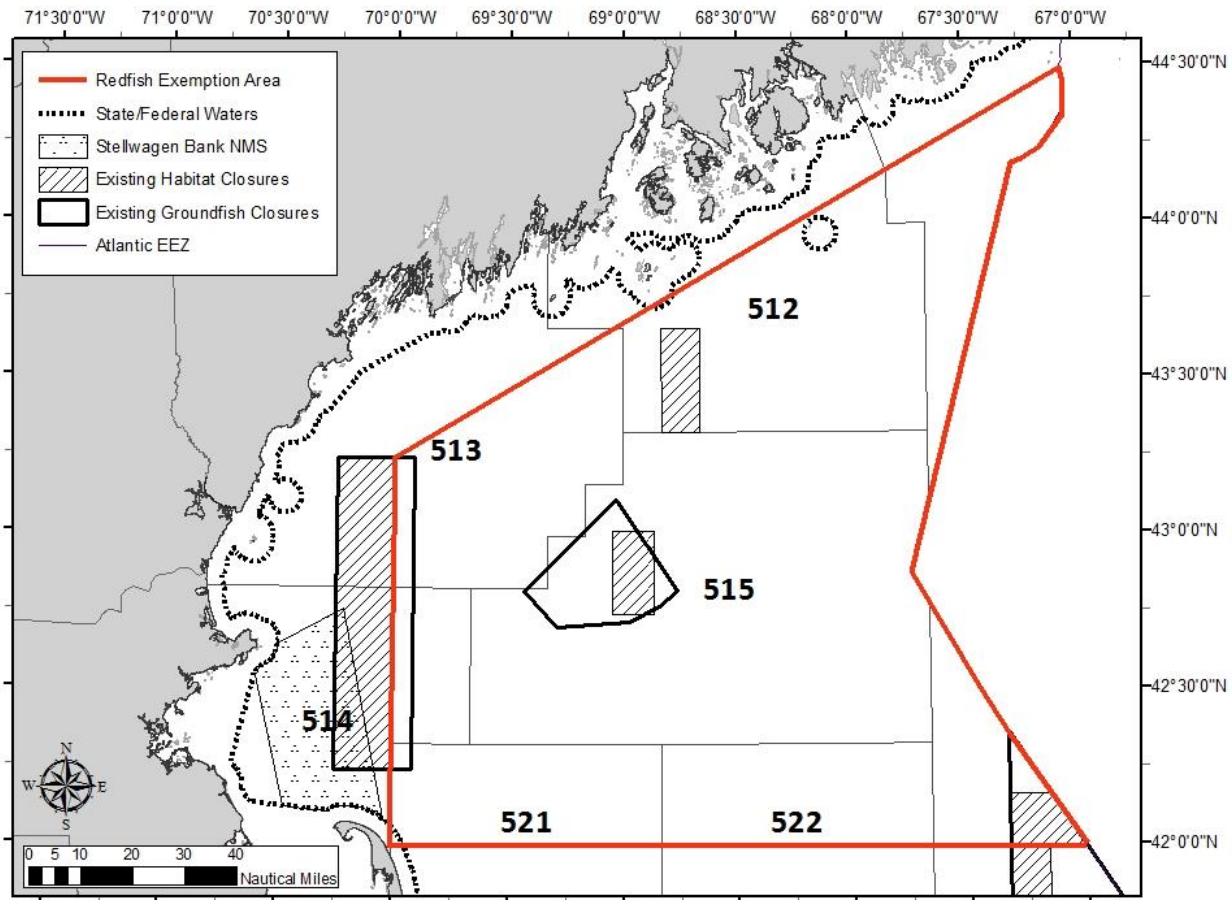
Table 9 - Coordinates for the Redfish Exemption Area

Point	N. Lat.	W. Long.
A	44°27.25'	67°02.75'
B	44°16.25'	67°30.00'
C	44°04.50'	68°00.00'
D	43°52.25'	68°30.00'
E	43°40.25'	69°00.00'
F	43°28.25'	69°30.00'
G	43°16.00'	70°00.00'
H	42°00.00'	70°00.00'
I	42°00.00'	67°00.63' [a]

Note: This area is currently the Redfish 6 inch exempted area. The same coordinates are proposed in Alternative 2.

[a] The intersection of 42°00' N. latitude and the U.S.-Canada Maritime Boundary. Longitude is approximate.

Figure 4 - Proposed Redfish Exemption Area



4.6.1.2 Alternative 2: Establish a Redfish Exemption Area in Amendment 18

Allow commercial vessels to use a 5.5" codend within the Redfish Exemption Area (Table 9, Figure 4) on trips with an observer or approved electronic monitoring technology on-board.

Stipulations:

1) Prior to leaving the dock, vessel operators would be required to declare their intent to fish in the Redfish Exemption area through the Vessel Monitoring System (VMS) by checking the box next to "Redfish Trip";
2) In the first part of the trip, vessel operators would fish with conventional groundfish codends (6.5") in the GOM and GB regulated mesh areas, except when towing a separator trawl on GB where the codend may be 6";
3) Vessel operators would be allowed to switch to 5.5" codends at the end of the trip after submitting VMS notification;
4) Vessel operators would report catch from the entire trip through the VMS prior to returning to port; and
5) Vessel operators would submit a separate Vessel Trip Report to report catch for each codend.

Rationale: Alternative 2 would encourage vessels to target redfish, which is currently under-harvested. Sectors would no longer need to request a redfish exemption, reducing administrative burden of the annual exemption request process. It would allow common pool vessels to declare a redfish trip, in addition to sector vessels. The mesh size would be decreased from 6" to 5.5", allowing greater retention of redfish. Recent studies of the REDNET project show that vessels can selectively target redfish with minimal bycatch, though this work has not yet been peer-reviewed (Pol & He 2014). Requiring monitoring on each trip would better account for catch in the Redfish Exemption Area.

Note: NMFS is currently analyzing a similar sector exemption request for FY2015. The exemption request would allow 5.5" mesh, but does not include the observer requirement and would not apply to the common pool.

5.0 ALTERNATIVES CONSIDERED BUT REJECTED

5.1 PERMIT AND/OR PSC SPLITTING

5.1.1 Splitting Groundfish Permits off of a Suite of Limited Access Permits

5.1.1.1 Alternative 1: No action

No action. Northeast Multispecies permits may not be split off of a suite of limited access permits.

5.1.1.2 Alternative 2: Permit splitting

Northeast Multispecies permits may be split off of a suite of limited access permits.

Rationale for not including Section 5.1.1: In August 2013, the Committee voted to consider permit splitting in A18, but in September, the Committee and Council voted to not consider this. The Committee and Council felt that permit splitting would best be accomplished via an omnibus amendment. Limited access permits were linked by an omnibus consistency amendment in the late 1990s (NEFMC 1999). Splitting off multispecies permits has the potential for implications in other fisheries, particularly if effort in other fisheries is increased. If there is a desire to control potential effort shifts into other fisheries, this might require some development of restrictions in those fisheries and FMPs. The groundfish plan could only make permit changes that are applicable to groundfish permits, and without making the changes to other FMPs, some permit holders might wind up with a groundfish permit that cannot be added or combined to any other permit.

5.1.2 Splitting Groundfish PSC off of a Suite of Limited Access Permits

5.1.2.1 Alternative 1: No action

No action. The Potential Sector Contribution (PSC) for any specific Northeast Multispecies stock may not be split off of a suite of limited access permits.

5.1.2.2 Alternative 3: PSC splitting

The Potential Sector Contribution (PSC) for any specific Northeast Multispecies stock may be split off of a suite of limited access permits.

Rationale for not including Section 5.1.2: In August 2013, the Committee voted to consider PSC splitting in A18, but in September, the Committee and Council voted to not consider this. The Committee and Council felt that PSC splitting would involve too much administrative complication. Splitting PSC of a multispecies stock off of a suite of permits is possible, but could greatly increase tracking complexity. It may not be possible to detach PSC from the multispecies permit it is associated with, without splitting said permit. There could be significant implementation challenges if permit or PSC splitting is recommended for implementation. The Analysis and Support Division of the GARFO should be consulted on the feasibility of specific approaches.

5.2 MODIFYING VESSEL UPGRADE RESTRICTIONS

Alternatives: Alternatives were never developed in detail.

Rationale for not including Section 5.2: In August 2013, the Committee voted to consider vessel upgrade restrictions in A18, but in November, the Committee voted to reverse its decision. The Committee felt that vessel upgrade restrictions would best be accomplished via an omnibus amendment, but that change to vessel length and horsepower provisions should also be considered. In January 2014, the Council voted "that vessel upgrade restrictions not be considered in Amendment 18, and instead, develop vessel upgrade restriction measures via an omnibus amendment in collaboration with GARFO." The Council also voted "to consider developing an omnibus to remove or change vessel length and horsepower provisions under the next priority discussion; and in the meantime, to raise this issue with the MAFMC and other relevant management entities to discuss these changes."

GARFO is proposing an omnibus amendment to all FMPs to modify the fishing vessel baseline specifications and upgrade restrictions. This action, as proposed, would not be a Secretarial amendment; however, GARFO staff would prepare the documents and analysis and the final product would be adopted by the NEFMC and MAFMC, with implementation targeted for May 2015. The proposed action would be fairly narrow:

1. Remove the gross and net tonnage restrictions from baseline and upgrade restrictions; and
2. Remove the one-time upgrade restriction.

GARFO is not proposing changes to the vessel length or horsepower provisions, so those elements would remain as part of the vessel baseline, and upgrades would continue to be restricted to 10% of the baseline length and 20% of the baseline horsepower.

5.3 ACCUMULATION LIMITS

5.3.1 Regulatory Definition of a Nonprofit Permit Bank

5.3.1.1 Alternative 1: No action

No action. Do not define a nonprofit permit bank. The only type of permit bank that would continue to be recognized is a state-operated permit bank.

5.3.1.2 Alternative 2: Defining a nonprofit permit bank

Definition:

An entity shall be considered a nonprofit permit bank under the following criteria:

1. It is a partnership, voluntary association, or other nonprofit entity established under the laws of the U.S.;
2. It holds Northeast Multispecies permits/MRIs;
3. It maintains transparent qualification criteria and application processes for the distribution of ACE to fishermen; and
4. It must distribute ACE to at least three distinct business entities in any fishing year.

Other Conditions:

A. Nonprofit permit banks shall not be allocated ACE, but must join a groundfish sector.
B. Nonprofit permit banks shall comply with existing and relevant leasing and transfer regulations that currently apply to sectors and individual permit-holders including lease reporting protocols, size-class or baseline restrictions (in the vessel transfer provisions), etc.
C. Nonprofit permit banks will be approved annually by the National Marine Fisheries Service, provided a complete application has been submitted by agreed upon deadlines. NMFS will ensure that all requirements listed above are fully and satisfactorily met prior to approval.
D. Nonprofit permit banks shall submit a performance report annually to the National Marine Fisheries service, which shall be a public document. These reports shall explain how the above qualification criteria were met.

Rationale: State-operated permit banks have already been defined through Amendment 17 to the Northeast Multispecies FMP. If permit banks are to be treated differently than other permit holders in terms of accumulation limits, a definition would be necessary to identify the other entities to which these alternatives would apply. Like state-operated permit banks, a nonprofit permit bank is designed to transfer groundfish allocations to active groundfish vessels in need of assistance. Unlike state-operated permit banks, nonprofit permit banks do not have an agreement with NMFS or any state agency, but are independent nonprofit entities.

Rationale for not including Section 5.3.1: In April 2014, the Council voted to treat permit banks the same as other permit holders in terms of accumulation limits, and thus determined that alternatives defining nonprofit permit banks are unnecessary at this time. Since June 2013, the Groundfish Committee and Council have discussed the purpose and role of permit banks and whether regulations specific to permit banks are necessary. Several ideas for a definition of nonprofit permit banks were discussed. The PDT encouraged the Committee to clearly articulate the goal of creating a regulatory definition for nonprofit permit banks. On the one hand the Committee discussed the idea that these entities provide a public good, support fleet diversity, and should have a higher accumulation cap than other entities. On the other hand, there has been concern that the collective holdings of permit banks should be limited, as they compete with active fishermen for PSC and may, collectively, accumulate too much quota. The Committee came to the conclusion in April 2014 that additional regulations are unnecessary to help permit banks achieve their missions and that a higher accumulation limit for them may result in an unfair advantage over commercial fishermen. The Committee also recognized that several aspects of Alternative 2 would need further development if a definition were to be considered in the future, as presented below. These sentiments were reiterated in an April 2014 Council motion.

Supporting the public good: If permit banks are to be used as a tool to support the public good, it could be further clarified what sort of public good should be achieved. Under Alternative 2 as drafted, a permit bank has free choice to limit to who and how much of its ACE would be available, though technically, a sector controls who the ACE is distributed to, not its members. Also, the "three distinct business entities" that it must distribute ACE to could be board members of the permit bank or owned by the same person. It has not yet been clarified what public good these entities should be achieving.

Preventing permit bank control of the fishery: If this is a desired outcome, then Alternative 2 would need further refinement, since becoming formally recognized as a nonprofit permit bank would be voluntary, as drafted. There could be many small permit banks that, in total, hold a great deal of quota. Additionally, Alternative 2 does not specify how much ACE a recognized nonprofit permit bank must lease out or how many nonprofit permit banks a nonprofit entity may have.

Requiring official nonprofit status: The Committee would need to articulate the concern that requiring official nonprofit status would address. Nonprofit organizations may earn a profit and invest those profits (e.g., in the stock market) with the intent of earning more money. However, all of the money made by the organization must be held by the organization. Profit sharing by members/owners is not allowed. Does the Committee intend to prevent profit sharing or something else? Individual states grant official nonprofit status, and they may do so in slightly different ways. To avoid an accumulation limit, a nonprofit entity could create more than one nonprofit permit bank.

Maintaining transparent qualification criteria and application processes: Unless otherwise recommended by the Council, NMFS may interpret "maintain" and "transparent" in Alternative 2 as requiring that a sector operations plan, a public document, detail if it has any nonprofit permit bank members that have been approved by NMFS and how those permit banks plan to distribute their ACE. The actual distribution of that ACE would be difficult to control, because the distribution of sector ACE is made by sectors themselves.

NMFS cannot enforce distribution of ACE within a sector: As long as nonprofit permit banks have to join a sector, as in Alternative 2, NMFS would be unable to enforce Criterion #4 that requires that ACE be distributed to at least three business entities. This criterion is inconsistent with current accounting practices, and would require a change in how ACE distribution is monitored. Currently, it is up to a sector to decide how its allocated ACE is distributed; NMFS does not have the authority to control within-sector ACE distribution. This control would require individual allocations (i.e., a LAPP). One approach may be to require that nonprofit permit banks be distinct from sectors. When sectors and the ACE trading process were established, it was specifically decided that since trading happens at the sector level, NMFS was not going to replicate tracking of DAS. NMFS had tracked DAS and how many DAS were leased in, the hierarchy of order which DAS were used (leased DAS first, then carry-over DAS, then allocated DAS, because you couldn't re-lease DAS or carry-over twice). NMFS intentionally did not engineer ACE tracking at an individual level. To back engineer that would require both a change to individual allocations (a huge issue that would require a referendum) and there would have to be a new administrative system to support it.

Requiring public reports: The condition that the annual reports be public would require additional development. Currently, the annual reports submitted by state-operated permit banks and sectors are not public documents, because of certain confidential data they contain. It would need to be clarified what nonconfidential content such public reports should include.

Leasing at or below market values: In January 2014, the Committee voted to reject the idea that ACE must be leased at below market values, in part due to PDT input that it would be difficult (if not impossible) to enforce this criterion, and would require more reporting than currently practiced. First, NMFS would have to be able to determine the daily market rate for leasing ACE of all stocks. Generally, the government has difficulty on its own determining prices in a

competitive market. Currently, sectors do submit price data to NMFS, but this is voluntary and only for inter-sector trades. Also, these prices are not necessarily stock-specific. Second, nonprofit permit banks would need to show receipts or other proof of sales price that correlate with the daily-fluctuating market rate. The only way to enforce this is to have required reporting of prices and a way to validate the price.

5.3.2 Limiting the Holdings of Permit Banks Collectively

5.3.2.1 Alternative 1: No action

No action. Do not limit the holdings of permit banks collectively.

5.3.2.2 Alternative 2: Limiting the holdings of permits by permit banks collectively

For any single fishing year, all permit banks, public and nonprofit, shall hold no more than X% of Northeast Multispecies permits.

Rationale for not including Section 5.3.2: In November 2013, the Committee voted to remove this section, though there was some interest expressed at the November Council meeting to still include this section. An aggregate cap on permit bank holdings may prevent new permit banks from forming in the future. Without a collective cap, permit banks may acquire and control a large share of fishery access privileges. As detailed in Section 5.3.1.2, the Committee has had extensive discussion of permit banks and is recommending that alternatives that would treat permit banks differently than other entities, in terms of accumulation limits, not be considered at this time.

5.3.3 Limiting the Use of PSC

5.3.3.1 Alternative 1: No action

No action. Do not limit the use of fishing access privileges.

5.3.3.2 Alternative 2: Limit the use of PSC

For any single fishing year, no individual, or business entity shall harvest through allocated and acquired fishing access privileges more than X% of a stock-specific PSC. Those individuals or business entities holding permits/MRIs prior to the control date of (April 7, 2011) will be restricted to harvesting[41] the percent of stock-specific PSC harvested as of the control date unless the allocated and acquired fishing access privileges exceeds the maximum percentage (X%) in which case harvesting will be allowed up to allocation/acquired percentage held as of the control date.

Rationale for not including Section 5.3.3: In November 2013, the Committee considered the language in Alternative 2 as a motion, but the motion failed. The Committee felt that there is too much variability in ACLs and catch each year to make a fixed limit on usage work, and that the utility of permits purchased after the control date would be limited, because each permit has a unique portfolio of PSC associated with it. Logistically, this could involve tracking the

[41] The PDT has suggested that since "harvest" typically refers to landings and discards, it would be easier to constrain just landings, rather than landings and discards, since discards are not estimated for individual entities.

allocations, leasing and catch of individual entities, which may be difficult since allocations are made to sectors.

5.4 HANDGEAR A PERMIT FISHERY

5.4.1 Alternative 2: Establish a Fishery for Handgear A Permits

[All other options under Alternative2 remain in Section 4.3.2.]

Option: Grandfathering

Under this option, HA permit holders may opt to enroll in a sector versus the HA fishery. For HA permits enrolling in sectors, the PSC contribution of those permits would be included in the sector sub-ACL rather than the HA fishery sub-ACL. In sectors, the PSC associated with HA permits can only be used by HA fishermen that are using handgear. All HA permit holders who enrolled in sectors in FY2012 and FY2013 and leased their ACE to active fishermen of other gear types may continue to do so.

Rationale for not including Section 5.4.1: Because NMFS cannot currently control how ACE is used once it has been distributed to a sector, this option would be inconsistent with current practice. In June 2014, the Committee and the Council both considered the language in Option I and voted to reject this option.

6.0 AFFECTED ENVIRONMENT

The Affected Environment is described in this document based on valued ecosystem components (VECs), including:

- Physical environment and Essential Fish Habitat (EFH),
- Target species,
- Non-target species and other fisheries,
- Protected resources, and
- Fishery-related businesses and communities.

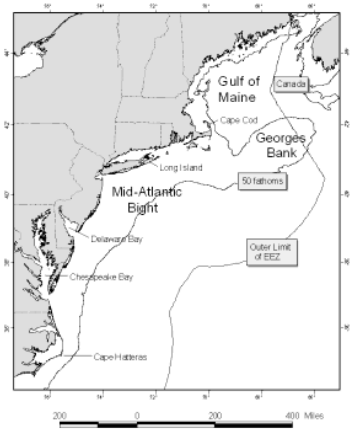
VECs represent the resources, areas and human communities that may be affected by the management measures under consideration in this amendment. VECs are the focus, since they are the "place" where the impacts of management actions are exhibited.

6.1 PHYSICAL ENVIRONMENT AND ESSENTIAL FISH HABITAT

The Northeast U.S. Shelf Ecosystem (Figure 5) includes area from the Gulf of Maine south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream (Sherman et al. 1996). The continental slope includes the area east of the shelf, out to a depth of 6,562 ft (2,000 m). Four distinct sub-regions are identified: the Gulf of Maine, Georges Bank, the Mid-Atlantic Bight, and the continental slope. The groundfish fishery primarily occurs in the inshore and offshore waters of the Gulf of Maine, Georges Bank, and the southern New England/Mid-Atlantic areas. Therefore, the description of the physical environment focuses on these sub-regions. Southern New England is a sub-region occasionally described. Here, its distinctive features are included in the sections describing Georges Bank and the Mid-Atlantic Bight.

Information on the affected physical environments relevant to this amendment is contained in Stevenson et al. (2004) and its primary source references including: Abernathy (1989); Backus (1987); Beardsley et al. (1996); Brooks (1996); Cook (1988); Dorsey (1998); Kelley (1998); Mountain et al. (1994); NEFMC (1998a); Reid and Steimle (1988); Schmitz et al. (1987); Sherman et al. (1996); Steimle et al. (1999); Stumpf and Biggs (1988); Townsend (1992); Tucholke (1987); and Wiebe et al. (1987). Additional information may be found in prior groundfish actions (NEFMC 2012)

Figure 5 – Northeast U.S. continental shelf ecosystem.

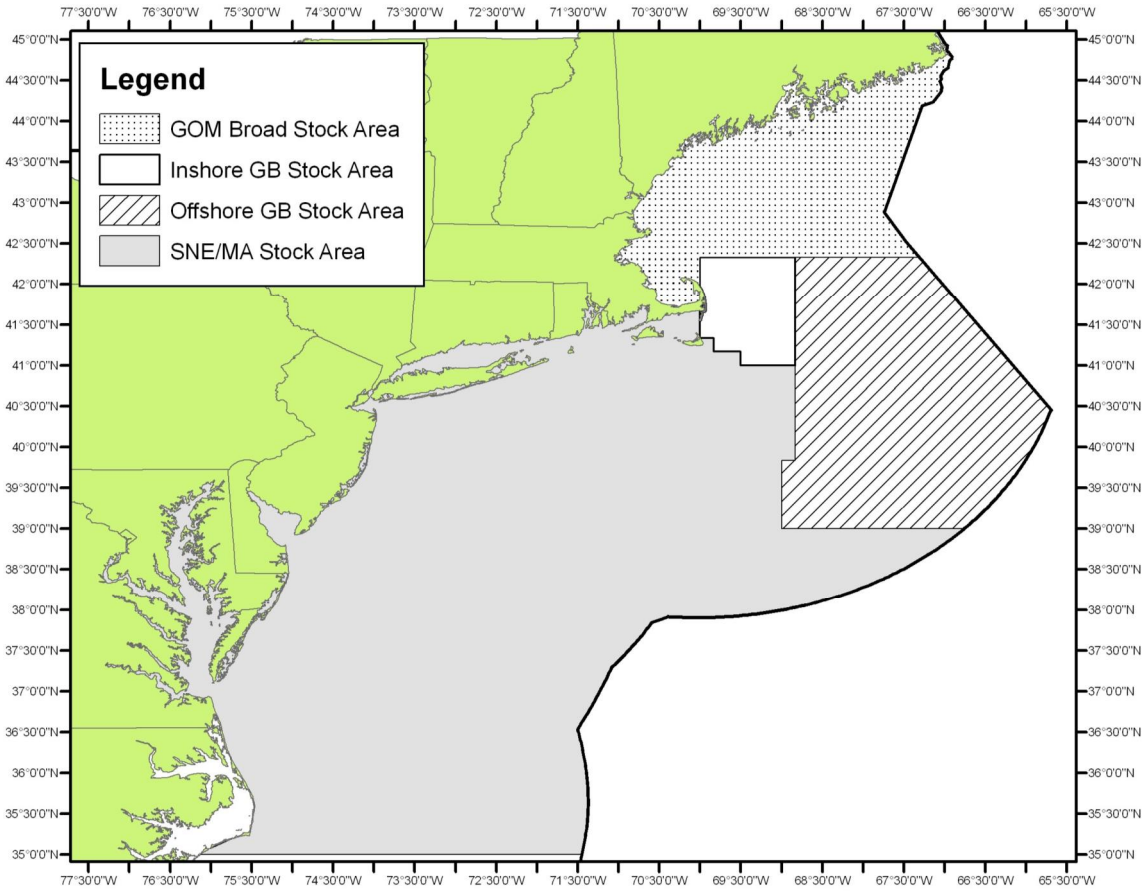


Source: Stevenson et al. (2004).

6.2 TARGET SPECIES

This section describes the life history and stock population status for each allocated fish stocks harvested under the Northeast Multispecies FMP. Figure 6 identifies the four broad stock areas used in the fishery. Further information on life history and habitat characteristics of the stocks managed in this FMP can be found in the Essential Fish Habitat Source Documents (NEFSC 2011b).

Figure 6 – Broad stock areas as defined in Amendment 16



Revisions to the National Standard Guidelines (NMFS 2009b) expanded on the classification of stocks in an FMP. For the Northeast Multispecies FMP, the stocks identified as the management unit are considered "stocks in the fishery" as defined by the NSGs. There are no stocks currently identified as "ecosystem component species," though this classification may be used in the future.

The allocated target stocks for the Northeast Multispecies FMP are: GOM Cod, GB Cod, GOM Haddock, GB Haddock, American Plaice, Witch Flounder, GOM Winter Flounder, GB Winter Flounder, Cape Cod/GOM Yellowtail Flounder, GB Yellowtail Flounder, SNE/MA Yellowtail Flounder, Redfish, Pollock and White Hake.

The Northeast Multispecies FMP also manages Atlantic halibut, ocean pout, windowpane flounder, SNE/MA winter flounder, and wolffish. However, the federal fishery does not receive an allocation of these species. These species are discussed in Section 6.3.

The following discussions have been adapted from the most recent stock assessment reports (NEFSC 2013d). Table 10 summarizes the status of the northeast groundfish stocks, which groundfish stocks are overfished or are experiencing overfishing. For FY2013, a total of 12 stocks were overfished (B less than ½ B_{MSY}) while 8 stocks were not overfished. Similarly, a total of 8 stocks were experiencing overfishing (F greater than F_{MSY}) while 12 stocks were not experiencing overfishing. Seven of the stocks are both overfished and experiencing overfishing. Seven stocks were classified as not overfished and not experiencing overfishing.

Table 10 – Status of the Northeast groundfish stocks for FY2014.

Stock Status	Stock	Assessment Source
Overfished, Overfishing Biomass < ½ B_{MSY} F > F_{MSY}	GB Cod	55th SAW (NEFSC 2013b)
	GOM Cod	55th SAW (NEFSC 2013b)
	Cape Cod/GOM Yellowtail Flounder	Assessment update (NEFSC 2012b)
	White Hake	56th SAW (NEFSC 2013c)
	Witch Flounder	Assessment update (NEFSC 2012b)
	Northern Windowpane	Assessment update (NEFSC 2012b)
	GB Yellowtail Flounder	2012 TRAC (Legault et al. 2012)
Overfished, not Overfishing Biomass < ½ B_{MSY} F ≤ F_{MSY}	Ocean Pout	Assessment update (NEFSC 2012b)
	Atlantic Halibut	Assessment update (NEFSC 2012b)
	GOM Winter Flounder[a,b]	52nd SAW (NEFSC 2011a)
	Atlantic Wolffish	Assessment update (NEFSC 2012b)
	SNE/MA Winter Flounder	52nd SAW (NEFSC 2011a)
Not Overfished, Overfishing Biomass ≥ ½ B_{MSY} F > F_{MSY}		
Not Overfished, not Overfishing Biomass ≥ ½ B_{MSY} F ≤ F_{MSY}	Acadian Redfish	Assessment update (NEFSC 2012b)
	American Plaice	Assessment update (NEFSC 2012b)
	GB Haddock	Assessment update (NEFSC 2012b)
	GB Winter Flounder	52nd SAW (NEFSC 2011a)
	GOM Haddock	59th SAW (NEFSC 2014)
	Pollock	50th SAW (NEFSC 2010)
	SNE/MA Yellowtail Flounder[b]	54th SAW (NEFSC 2012a)
	Southern Windowpane	Assessment update (NEFSC 2012b)

Notes:

B_{MSY} = biomass necessary to produce maximum sustainable yield (MSY)

F_{MSY} = fishing mortality rate that produces the MSY

[a] Rebuilding, but no defined rebuilding program due to a lack of data.

[b] Unknown whether the stock is overfished.

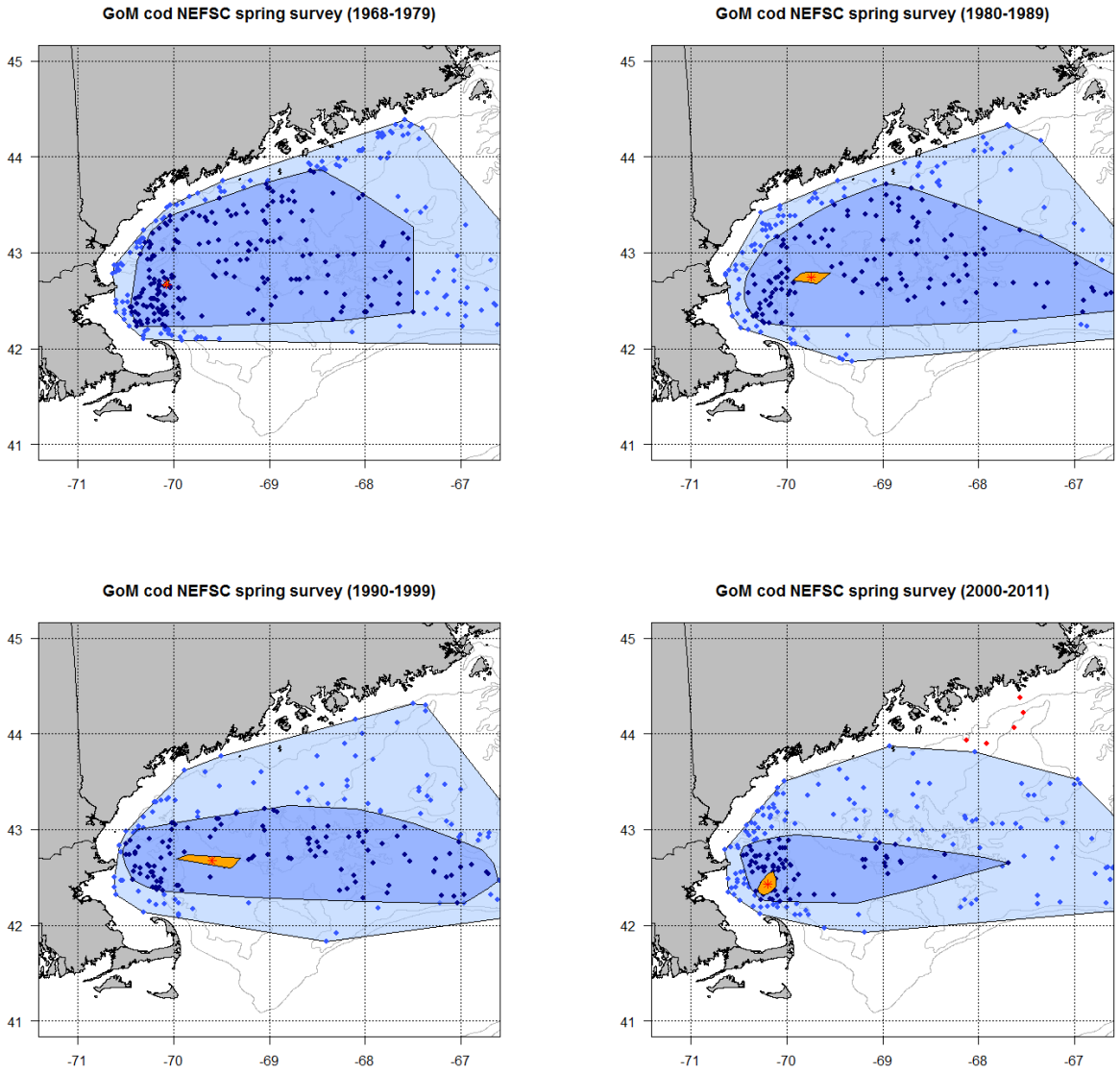
6.2.1 Gulf of Maine Cod

Life History: The Atlantic cod, *Gadus morhua*, is a demersal gadoid species found on both sides of the North Atlantic. In the western North Atlantic, cod occur from Greenland to North Carolina. In U.S. waters, cod are assessed and managed as two stocks: GM and GB. GOM cod attain sexual maturity at a later age than GB cod due to different growth rates between the two stocks. The greatest concentrations of cod off the U.S. Northeast coast are on rough bottoms 33 - 492 ft (10 - 150 m) deep and at 32 - 50°F (0 - 10°C). Spawning occurs year-round near the ocean bottom, with a peak in winter and spring. Peak spawning corresponds to 41 - 45°F (5 - 7°C) water. It is delayed until spring when winters are severe and peaks in winter when mild. Eggs are pelagic, buoyant, spherical, and transparent. They drift for 2 - 3 weeks before hatching. The larvae are pelagic for about three months until reaching 1.6 - 2.3 in (4 - 6 cm), when they descend to the seafloor. Most remain on the bottom, and there is no evidence of a subsequent diel, vertical migration. Adults tend to move in schools, usually near the bottom, but also occur in the water column (NEFSC 2011b).

Population Status: The GOM stock appears to be relatively distinct from the offshore cod stocks on the banks of the Scotian Shelf and Georges Bank based on tagging studies. GOM cod spawning stock biomass (SSB) has increased since the late 1990's from 12,236 ton (11,100 metric tons [mt]) in 1997 to 37,479 ton (34,000 mt) in 2007. However, the stock remains low relative to historic levels and is subject to a formal stock rebuilding plan. The 2010 biomass estimate, the most recent estimate available, was 8 % of the biomass rebuilding target. Currently, the GOM cod stock is overfished and overfishing is occurring (NEFSC 2013b).

Population Distribution: Data from cod survey catches (weight) and locations from NEFSC spring bottom-trawl surveys, 1968-2011, show that the GOM cod stock appears to have concentrated into Statistical Reporting Area (SRA) 514 in the area around Stellwagen Bank, whereas in the past GOM cod was more widely distributed (NEFMC 2014c). Other information from a recent NMFS stock assessment report (NEFSC 2013a) shows similar broad-scale patterns (e.g., proportional distribution plots, Gini indices, centroids, landings trends) as does the recent survey report from the Maine-New Hampshire inshore GOM trawl survey (Sherman et al. 2012). 2013). Furthermore, the cod industry-based survey, in 2003-2007, was designed to examine the distribution of cod in the GOM. It was determined that cod biomass is centered in the western GOM with few fish found in the eastern GOM. These patterns are also consistent with the recent spatial distribution of cod in the NEFSC spring survey.

Figure 7 - Bagplots of GOM cod survey catches shown for 10-year groupings, 1968-2011



Notes:
Ten-year groupings are: 1968-1979; 1980-1989; 1990-1999; and 2000-2011. The red asterisk is the bivariate median (catch weighted Lat, Lon). The orange area is approximate 95% confidence interval for differences in bivariate median. The dark blue area contains the middle 50% of the data (the interquartile range, IQR). The light blue area encompasses approximately upper quartiles up to around 1 and 99%. The red dots outside of these areas are outliers (e.g., low survey catches in waters off the coast of Downeast Maine; 2000-2011).

Source:

NEFMC spring bottom-trawl surveys, 1968-2011. Figure courtesy of Michael Palmer, NEFSC, as cited in NEFMC (2014c).

6.2.2 Georges Bank Cod

Life History: Georges Bank cod, *Gadus morhua,* is the most southerly cod stock in the world. The greatest concentrations off the Northeast coast of the U.S. are on rough bottoms in waters between 33 and 492 ft (10 - 150 m) and at temperatures between 32 and 50° F (0 - 10°C). Spawning occurs year-round, near the ocean bottom, with a peak in winter and spring. Peak spawning corresponds to water temperatures between 41 and 45°F (5 - 7°C). It is delayed until spring when winters are severe and peaks in winter when mild. Eggs are pelagic, buoyant, spherical, and transparent. They drift for 2 to 3 weeks before hatching. The larvae are pelagic for about 3 months until reaching 1.6 to 2.3 in (4 - 6 cm), at which point they descend to the seafloor. Afterwards, most remain on the bottom, and there is no evidence of a subsequent diel, vertical migration. Adults tend to move in schools, usually near the bottom, but also occur in the water column.

Population Status: GB cod is a transboundary stock co-managed by the U.S. and Canada. The GB cod stock is overfished and overfishing is occurring. SSB in 2011 was estimated to be 13,216 mt which is 7% of the SSB_{MSY} (186,535 mt). The 2011 fully recruited fishing mortality (ages 5+) is estimated to be 0.43, which is more than twice as high as the F_{MSY} (0.18). The assessment model exhibits a strong retrospective pattern (tending to overestimate SSB and underestimate F), which was corrected for when providing the estimates of SSB and F for 2011, stock status and projection starting points (NEFSC 2013b).

6.2.3 Gulf of Maine Haddock

Life History: Gulf of Maine haddock, *Melanogrammus aeglefinus*, is a demersal gadoid species found in the North Atlantic Ocean, occurring from Cape May, New Jersey to the Strait of Belle Isle, Newfoundland. Six distinct haddock stocks have been identified, and two occur in U.S. waters associated with Georges Bank and the Gulf of Maine. Haddock are highly fecund broadcast spawners, spawing over various substrates including rocks, gravel, smooth sand, and mud. In the Gulf of Maine, spawning occurs from early February to May, usually peaking in February to April. Haddock release their eggs near the ocean bottom in batches where a courting male then fertilizes them. Fertilized eggs become buoyant and rise to the surface water layer and remain in the water column to development. Larvae metamorphose into juveniles in roughly 30 to 42 days at lengths of 0.8 to 1.1 in (2 - 3 cm). Juveniles initially live in the epipelagic zone and remain in the upper water column for 3 - 5 months, but they visit the seafloor in search of food. They settle into a demersal existence once they locate suitable habitat. Haddock do not make extensive migrations, but prefer deeper waters in the winter and tend to move shoreward in summer (NEFSC 2011b).

Population Status: The GOM haddock stock is not overfished, and overfishing is not occurring. The stock size has been decreasing and is approaching an overfished condition. Should the stock size drop below the minimum stock size threshold, a formal stock rebuilding program would need to be put in place. The 2013 SSB is estimated at 4,153 mt, above the <2,452 mt overfishing threshold, a change from the 2012 assessment update when the stock was experiencing overfishing. Fishing mortality has been below F_{MSY} since 1992 (NEFSC 2014).

6.2.4 Georges Bank Haddock

Life History: The life history of GB haddock, *Melanogrammus aeglefinus*, is comparable to the GOM haddock (Section 6.2.3). On Georges Bank, spawning occurs from January to June, usually peaking from February to early-April. This is the principal haddock spawning area in the Northeast U.S. Shelf Ecosystem, concentrating on the northeast peak of Georges Bank. Median age and size of maturity differ slightly between the GB and GOM haddock stocks (NEFSC 2011b). The GOM haddock have lower weights at age than the GB stock and the age at 50% maturity was also lower for GOM haddock than GB haddock.

Population Status: The GB haddock stock is a transboundary stock co-managed by the U.S. and Canada. The stock is not overfished and overfishing is not occurring. The fishing mortality rate for this stock has been low in recent years. There has been a steady increase in SSB from ~15,000 mt in the early 1990s, to about 252,000 mt in 2007. The dramatic increase 2005- 2007 is due to the exceptionally large 2003 year class reaching maturity. From 2007 to 2010, SSB decreased 35% as that 2003 year class decreased due to natural and fishing mortality. The fishing mortality rate for this stock has been low in recent years. Substantial declines have recently occurred in the weights at age due to slower than average growth. This was particularly true of the 2003 year-class. This decline is affecting productivity in the short-term. The growth of subsequent year-classes is returning to the earlier rates (NEFSC 2012b).

6.2.5 American Plaice

Life History: American plaice, *Hippoglossoides platessoides*, is an arctic-boreal to temperate-marine pleuronectid (righteye) flounder that inhabits the continental shelves of the North Atlantic. Off the U.S. coast, American plaice are managed as a single stock in the Gulf of Maine-Georges Bank region. American plaice are batch spawners, releasing eggs in batches every few days over the spawning period. Adults spawn and fertilize their eggs at or near the bottom. Buoyant eggs lack oil globules and drift into the upper water column. Eggs hatch at the surface and the time between fertilization and hatching varies with water temperature. Transformation of the larvae and migration of the left eye begins when the larvae are ~0.8 in (20 mm). Dramatic physiological transformations occur during the juvenile stage; the body shape flattens and widens. As the migration of the left eye across the top of the head to the right side reaches completion, descent towards the seafloor begins. In U.S. and Canadian waters, adult American plaice are sedentary, migrating only for spawning and feeding (NEFSC 2011b).

Population Status: In the Gulf of Maine and Georges Bank, the American plaice is not overfished and overfishing is not occurring. Commercial catch has declined since 1995. However, a stock assessment conducted in 2012 indicates that the stock will not rebuild by 2014 to the SSB_{MSY} of 18,398 mt, the currently specified rebuilding target date, even if no fishing is allowed on the. Because of this inadequate rebuilding progress, a revised rebuilding program is necessary and will be developed for use no later than May 1, 2014 (NEFSC 2012b).

6.2.6 Witch Flounder

Life History: Witch flounder, *Glyptocephalus cynoglossus*, is a demersal flatfish distributed on both sides of the North Atlantic. In the western North Atlantic, the species ranges from Labrador southward, and closely associates with mud or sand-mud bottom. In U.S. waters, witch flounder are common throughout the Gulf of Maine, in deeper areas on and adjacent to Georges Bank, and along the shelf edge as far south as Cape Hatteras, North Carolina. Witch flounder is managed

as a unit stock. Spawning occurs at or near the bottom; however, the buoyant eggs rise into the water column where subsequent egg and larval development occurs. The pelagic stage of witch flounder is the longest among the species of the family Pleuronectidae. Descent to the bottom occurs when metamorphosis is complete, at 4 - 12 months of age. There has been a decrease in both the age and size of sexual maturity in recent years. Witch flounder spawn from March to November, with peak spawning occurring in summer. The general trend is for spawning to occur progressively later from south to north. In the Gulf of Maine-Georges Bank region, spawning occurs from April to November, and peaks from May to August. Spawning occurs in dense aggregations that are associated with areas of cold water. Witch flounder spawn at 32 - 50 °F (0 - 10°C) (NEFSC 2011b).

Population Status: Witch flounder are overfished and overfishing is occurring as of 2010; the spawning stock biomass was 4,099 mt, 41% below SSB_{MSY} (10,051 mt) and 2010 fishing mortality was 0.47, 173% above F_{MSY} (F=0.27). Total catch has declined in recent years and is below the time series average. Spawning stock biomass has shown a general declining trend over the time series (NEFSC 2012b).

6.2.7 Gulf of Maine Winter Flounder

Life History: Winter flounder, *Psuedopleuronectes americanus*, is a demersal flatfish distributed in the western North Atlantic from Labrador to Georgia. Important U.S. commercial and recreational fisheries exist from the Gulf of Maine to the Mid-Atlantic Bight. Winter flounder is managed and assessed in U.S. waters as three stocks: Gulf of Maine, southern New England/Mid-Atlantic, and Georges Bank. Adult GOM winter flounder migrate inshore in the fall and early winter and spawn in late winter and early spring. Peak spawning occurs in Massachusetts Bay and south of Cape Cod during February and March, and somewhat later along the coast of Maine, continuing into May. After spawning, adults typically leave inshore areas when water temperatures exceed 59°F (15°C), although some remain inshore year-round. Winter flounder eggs are demersal, adhesive, and cluster together. Larvae are initially planktonic, but 5 - 6 weeks after hatching become increasingly bottom-oriented with metamorphosis, as the left eye migrates to the right side of the body and the larvae become "flounder-like." This finishes by the time the larvae are 0.3 - 0.4 in (8 - 9 mm) long at ~8 weeks old. Newly metamorphosed young-of-the-year winter flounder reside in shallow water where individuals may grow to ~4 in (100 mm) within the first year (NEFSC 2011b).

Population Status: The overfished status remains unknown because a biomass reference point or proxy cannot be determined and an analytical assessment model has not been accepted. However, the overfishing is likely not occurring as of 2010. Commercial landings increased to a peak of 2,793 mt in 1982, and have declined to a record low of 140 mt in 2010 (NEFSC 2011a).

6.2.8 Georges Bank Winter Flounder

Life History: The life history of the GB winter flounder**,** *Psuedopleuronectes americanus*, is comparable to the GOM winter flounder life history (Section 6.2.7) (NEFSC 2011b). On Georges Bank, winter flounder are generally found at depths less than 82 m (Collette & Klein-MacPhee 2002). There is limited mixing of fish among the three current stock units, with about 1%-3% between the GOM and SNE/MA, about 1% between GBK and SNE/MA, and <1% between GOM and GBK. Also, the GB stock tends to mature the fastest (NEFSC 2011b).

Population Status: As of 2010, the stock was not overfished and overfishing was not occurring. Spawning stock biomass decreased from a peak of 17,400 mt in 1982 to a record low of 3,400 mt in 1995, and was 9,703 mt in 2010. The 2011 assessment indicates that the stock was overfished in 2004 and 2005, and stock size was below the biomass target from 2006-2010 (NEFSC 2011a).

6.2.9 Cape Cod/Gulf of Maine Yellowtail Flounder

Life History: Yellowtail flounder, *Limanda ferruginea*, is a demersal flatfish that occurs from Labrador to Chesapeake Bay. It generally inhabits depths between 131 - 230 ft (40 - 70 m). It is managed as three stocks off the U.S. coast: Cape Cod/GOM, GB, and SNE/MA. Spawning occurs from March through August at temperatures of 41 - 54 °F (5 - 12°C), along the continental shelf northwest of Cape Cod. Yellowtail flounder spawn buoyant, spherical, pelagic eggs that lack an oil globule. Pelagic larvae are brief residents in the water column with transformation to the juvenile stage occurring at 0.5 - 0.6 in (11.6 - 16 mm) standard length. There are high concentrations of adults around Cape Cod in spring and autumn. The median age at maturity for females is 2.6 years off Cape Cod (NEFSC 2011b).

Population Status: The Cape Cod/GOM yellowtail flounder stock continues to be overfished and overfishing is continuing, as of 2010. The spawning stock biomass (SSB = 1,680 mt) is below the biomass target ($SSB_{MSY\ proxy}$ = 7,080 mt). However, fishing mortality has been declining since 2000 and was at the lowest level observed in the time series in 2009. SSB has been increasing since 2005. There appears to be a moderately strong 2005 year class (NEFSC 2012b).

6.2.10 Georges Bank Yellowtail Flounder

Life History: The life history of the GB yellowtail flounder, *Limanda ferruginea,* is comparable to the Cape Cod/GOM yellowtail (Section 6.2.9). It is a transboundary resource in Canadian and US jurisdictions. The median age at maturity for females is 1.8 years on Georges Bank. Spawning takes place along continental shelf waters of Georges Bank (NEFSC 2011b).

Population Status: GB yellowtail flounder is overfished, and overfishing is occurring. Recruitment continues to be poor, with the two most recent cohorts estimated to be the lowest in the time series at 3.0 and 3.1 million age 1 fish, and the most recent ten years all below the average of the assessment time series. Spawning stock biomass has been relatively low since 1984, although SSB and adult (age 3+) beginning year biomass have both increased for the past six years, to 4,600 mt and 4,500 mt in 2011, respectively. The fishing mortality rate for fully recruited ages 4+ was estimated to be 0.31 in 2011, and has been above the F_{ref} of 0.25 for the entire assessment time series (Legault, et al. 2012).

6.2.11 Southern New England/Mid-Atlantic Yellowtail Flounder

Life History: The life history of the SNE/MA yellowtail flounder, *Limanda ferruginea,* is comparable to the Cape Cod/GOM yellowtail (Section 6.2.11). The median age at maturity for females is 1.6 years off southern New England (NEFSC 2011b).

Population Status: Southern New England/Mid-Atlantic yellowtail flounder is not overfished, not subject to overfishing, and considered rebuilt as of a 2012 assessment (NEFSC 2012a). Spawning stock biomass was estimated to be 3,873 mt and average fishing mortality for ages 4-5 (F_{4-5}) is 0.12. This is a change in the overfishing status from the GARM III model results which indicated that overfishing was occurring (NEFSC 2008b). Conclusions about whether the stock

is overfished depend on which recruitment scenario is used. Spawning biomass has been in decline since 1990. There are some signs of rebuilding from a strong 2005 year class. Fishing mortality has had a decreasing trend since 2001 but remains slightly above F_{MSY}. The assessment concluded that the stock is less productive than previously believed and, as a result, the overall biomass at recently seen low levels represents the rebuilt state of nature for the stock.

6.2.12 Acadian Redfish

Life History: The Acadian redfish, *Sebastes fasciatus* Storer, and the deepwater redfish, *S. mentella* Travin, are virtually indistinguishable from each other based on external characteristics. Deepwater redfish are less prominent in the more southerly regions of the Scotian Shelf and appear to be virtually absent from the Gulf of Maine. Conversely, Acadian redfish appear to be the sole representative of the genus Sebastes. Acadian redfish, inhabiting the U.S. waters of the Gulf of Maine and deeper portions of Georges Bank and the Great South Channel, is managed as a unit stock.

Redfish are a slow-growing, long-lived, ovoviviparous species with an extremely low natural mortality rate and low fecundity. Redfish fertilize their eggs internally. The eggs develop into larvae within the oviduct, and are released near the end of the yolk sac phase. The release of larvae lasts for 3 – 4 months with a peak in late May to early June. Newly-spawned larvae occur in the upper 10 m of the water column, at 0.4 - 1.0 in (10 – 25 mm). The post-larvae descend below the thermocline when about 1 in (25 mm) in length. Young-of-the-year are pelagic until reaching 1.6 - 2.0 in (40 - 50 mm) at 4 - 5 months old. Therefore, young-of-the-year typically move to the bottom by early fall of their first year. Adult redfish are 9 in (22 cm) or greater. Generally, the size of landed redfish positively correlates with depth. This may be due to differential growth rates of stocks, confused species identification (deepwater redfish are a larger species), size-specific migration, or gender-specific migration (females are larger). Redfish make diurnal vertical migrations linked to their primary euphausiid prey. Nothing is known about redfish breeding behavior. However, fertilization is internal and fecundity is relatively low (NEFSC 2011b).

Population Status: The redfish stock is not overfished and overfishing is not occurring. At a spawning stock biomass of 314,750 mt in 2010, the stock is above the biomass target, $SSB_{MSY\ proxy}$ = 238,000 mt. Spawning biomass has increased substantially since the mid-1990s. Fishing mortality has been below F_{MSY} since 1997.

6.2.13 Pollock

Life History: Pollock, *Pollachius virens*, occur on both sides of the North Atlantic. In the western North Atlantic, it is most abundant on the western Scotian Shelf and in the Gulf of Maine. There is considerable movement of pollock between the Scotian Shelf, Georges Bank, and the Gulf of Maine. Although some differences in meristic and morphometric characters exist, there are no significant genetic differences among areas. As a result, pollock are assessed as a single unit. The principal pollock spawning sites in the western North Atlantic are in the western Gulf of Maine, Great South Channel, Georges Bank, and on the Scotian Shelf. Spawning takes place from September to April. Spawning time is more variable in northern sites than in southern sites. Spawning occurs over hard, stony, or rocky bottom. Spawning activity begins when the water cools to near 46 °F (8° C) and peaks when temperatures are ~40 - 43 °F (4.5 - 6°C). Thus, most spawning occurs within a comparatively narrow range of temperatures.

Pollock eggs are buoyant and rise after fertilization. The pelagic larval stage is 3 - 4 months, when the small juveniles or "harbor pollock" migrate inshore to inhabit rocky subtidal and intertidal zones. Pollock then undergo a series of inshore-offshore movements linked to temperature until near the end of their second year. At that point, the juveniles move offshore where the pollock remain throughout the adult stage. Pollock are a schooling species and occur throughout the water column. With the exception of short migrations due to temperature changes and north-south movements for spawning, adult pollock are fairly stationary in the Gulf of Maine and along the Nova Scotian coast. Male pollock reach sexual maturity at a larger size and older age than females. Age and size at maturity of pollock have declined in recent years, as has been reported in other marine fish species such as haddock and witch flounder (NEFSC 2011b).

Population Status: The pollock stock is not subject to overfishing, is not overfished, and was declared rebuilt in 2010 (NEFSC 2010). In 1970, the spawning stock biomass (SSB) was estimated at 297,000 mt, and SSB decreased to a time series low (68,600 mt) in 1990. SSB increased steadily through 2006, with a slight decline during 2007 - 2009. Spawning biomass in 2009 is 196,000 mt.

6.2.14 White Hake

Life History: The white hake, *Urophycis tenuis*, occurs from Newfoundland to southern New England and is common on muddy bottom throughout the Gulf of Maine. The depth distribution of white hake varies by age and season. Juvenile white hake typically occupy shallower areas than adults, but individuals of all ages tend to move inshore or shoalward in summer and disperse to deeper areas in winter. The northern spawning group of white hake spawns in late summer (August-September) in the southern Gulf of St. Lawrence and on the Scotian Shelf. The timing and extent of spawning in the Georges Bank - Middle Atlantic spawning group has not been clearly determined. The eggs, larvae, and early juveniles are pelagic. Older juvenile and adult white hake are demersal. The eggs are buoyant. Pelagic juveniles become demersal at 2.0 to 2.4 in (50 - 60 mm) total length. The pelagic juvenile stage lasts about two months. White hake attain a maximum length of 53 in (135 cm) and weigh up to 49 lbs (22 kg). Female white hake are larger than males (NEFSC 2011b).

Population Status: The 2008 assessment for white hake concluded the stock was overfished and overfishing was occurring. This favorable determination of stock status is a change from the previous stock assessment in which white hake was judged to be overfished and subject to overfishing in 2007. Fishing mortality has varied over a wide range since the 1970s but presently is well below the $F_{MSY\ proxy}$. The improving condition of the stock is indicated by the more than three-fold increase in spawning stock biomass from a time series low in 1997. A comprehensive stock assessment is planned for early 2013. (NEFSC 2013c).

6.3 NON-TARGET SPECIES AND OTHER FISHERIES

6.3.1 Non-Allocated Groundfish Species

The Northeast Multispecies FMP also manages Atlantic halibut, ocean pout, windowpane flounder, SNE/MA winter flounder, and wolffish. However, the federal fishery does not receive an allocation of these species. Sector and common pool vessels cannot land wolffish, ocean pout, windowpane flounder, and SNE/MA winter flounder, but can retain one halibut per trip.

6.3.1.1 Southern New England/Mid-Atlantic Winter Flounder

Life History: The life history of SNE/MA winter flounder**,** *Psuedopleuronectes americanus*, is comparable to the GOM winter flounder life history (Section 6.2.7). There is limited mixing of fish among the three current stock units, with about 1%-3% between the GOM and SNE/MA, about 1% between GBK and SNE/MA, and <1% between GOM and GBK (NEFSC 2011b).

Population Status: As of 2010, the SNE/MA winter flounder stock was overfished but overfishing was not occurring. This is an improvement from 2007 when the stock was overfished and was experiencing overfishing. Spawning stock biomass decreased from 20,100 mt in 1982 to a record low of 3,900 mt in 1993 and then increased to 8,900 mt by 2000. SSB has varied between 4,500-8,000 mt during 2001-2009 and was 7,076 mt in 2010 (NEFSC 2011a).

6.3.1.2 Northern Windowpane Flounder

Life History: Windowpane flounder or sand flounder, *Scophthalmus aquosus*, is a left-eyed, flatfish species that occurs in the northwest Atlantic from the Gulf of St. Lawrence to Florida (Collette & Klein-MacPhee 2002). Windowpane prefer sandy bottom habitats and occur at depths from the high water mark to 656 ft (200 m), with the greatest abundance at depths < 180 ft (55 m), and at temperatures of 32º-80ºF (0º-26.8ºC) (Moore 1947). On Georges Bank, it is most abundant at depths < 60 m during late spring through autumn but overwintering occurs in deeper waters to 366 m (Chang et al. 1999). Windowpane flounders are assessed and managed as two stocks: Gulf of Maine-Georges Bank (GOM/GB) and Southern New England-Mid-Atlantic Bight (SNE/MA) due to differences in growth rates, size at maturity, and relative abundance trends. Windowpane generally reach sexual maturity between ages 3 and 4 (Moore 1947), though males can mature at age 2 (Grosslein & Azarovitz 1982). On Georges Bank, median length at maturity is nearly the same for males (8.7 in, 22.2 cm) and females (8.9 in, 22.5 cm) (O'Brein et al. 1993). Spawning occurs on Georges bank during July and August and peaks again between October and November at temperatures of 55º- 61ºF (13º-16ºC) (Morse & Able 1995). Eggs incubate for 8 days at 50º-55ºF (10º-13ºC) and eye migration occurs approximately 17- 26 days after hatching (Klein-MacPhee, unpub.data, in Collette & Klein-MacPhee 2002). During the first year of life, spring-spawned fish have significantly faster growth rates than autumn-spawned fish, which may result in differential natural mortality rates between the two cohorts (Neuman et al. 2001). Young windowpane settle inshore and then move offshore to deeper waters as they grow. Windowpane on Georges Bank aggregate in shallow water during summer and early fall and move offshore in the winter and early spring (Grosslein & Azarovitz 1982).

Population Status: These biomass indices have fluctuated above and below the time series median as fishing mortality rates have fluctuated below and above the point where the stock could replenish itself. Biomass indices increased to levels at or slightly above the median during

1998-2003, but then fell below the median from 2004-2010, and was 29% of B_{MSY} in 2010. In 2010, the stock was overfished and overfishing was occurring, which was also the case during the last assessment that used data through 2007 (NEFSC 2012b).

6.3.1.3 Southern Windowpane Flounder

Life History: The life history of Southern New-England/Mid-Atlantic Bight Windowpane flounder, *Scophthalmus aquosus*, is comparable to Northern Windowpane Flounder (Section 6.3.1.1). In Southern New England, median length at maturity is nearly the same for males (8.5 in, 21.5 cm) and females (8.3 in, 21.2 cm) (O'Brein, et al. 1993). A split spawning season occurs between Virginia and Long Island with peaks in spring and fall (Chang, et al. 1999). Spawning occurs in the southern Mid-Atlantic during April and May and then peaks again in October or November (Morse & Able 1995).

Population Status: As of 2010, the stock is not overfished, overfishing is not occurring, and the stock is above the biomass target ($B_{MSY\ proxy}$). Therefore, the stock is considered to be rebuilt. This is an improvement from 2007, when the stock was not overfished, but overfishing was occurring (NEFSC 2012b).

6.3.1.4 Ocean Pout

Life History: Ocean pout, *Zoarces americanus*, is a demersal eel-like species found in the northwest Atlantic from Labrador to Delaware. Ocean pout are most common on sand and gravel bottom (Orach-Meza 1975) at depths of 49-262 ft (15-80 m) (Clark & Linvingstone 1982) and temperatures of 43º-48º F (6º-9º C) (Scott 1982). In US waters, ocean pout are assessed and managed as a unit stock from the Gulf of Maine to Delaware. In the Gulf of Maine, median length at maturity for males and females is 11.9 in (30.3 cm) and 10.3in (26.2 cm), respectively. Median length at maturity for males and females from Southern New England is 12.6 in (31.9 cm) and 12.3in (31.3 cm), respectively (O'Brein, et al. 1993). According to tagging studies conducted in Southern New England, ocean pout appear not to migrate, but do move between different substrates seasonally. In Southern New England-Georges Bank they occupy cooler rocky areas in summer, returning in late fall (Orach-Meza 1975). In the Gulf of Maine, they move out of inshore areas in the late summer and then return in the spring. Spawning occurs between September and October in Southern New England (Olsen & Merriman 1946) and in August and September in Newfoundland (Keats et al. 1985). Adults aggregate in rocky areas prior to spawning. Eggs are internally fertilized (Mercer et al. 1993; Yao & Crim 1995) and females lay egg masses encased in a gelatinous matrix that they then guard during the incubation period of 2.5-3 months (Keats, et al. 1985). Ocean pout hatch as juveniles on the bottom and are believed to remain there throughout their lives (Methven & Brown 1991; Yao & Crim 1995).

Population Status: Between 1975 and 1985, NEFSC spring trawl survey biomass indices increased to record high levels, peaking in 1981 and 1985. Since 1985, survey catch per tow indices have generally declined, and the 2010 index was the lowest value in the time series. Catch and exploitation rates have also been low, but stock size has not increased. Fishing mortality has been well below F_{msy} since 1992. As of 2010, ocean pout was overfished, but overfishing was not occurring. There are no signs of stock rebuilding despite that fishing mortality is relatively low (NEFSC 2012b).

6.3.1.5 Atlantic Halibut

Life History: Atlantic halibut, *Hippoglossus hippoglossus*, is the largest species of flatfish in the northwest Atlantic Ocean. This long-lived, late-maturing flatfish is distributed from Labrador to southern New England (Collette & Klein-MacPhee 2002). They prefer sand, gravel, or clay substrates at depths up to 1000 m (Miller et al. 1991; Scott & Scott 1988). Along the coastal Gulf of Maine, halibut move to deeper water in winter and shallower water in summer (Collette & Klein-MacPhee 2002). Atlantic halibut reach sexual maturity between 5 to 15 years and the median female age of maturity in the Gulf of Maine-Georges Bank region is 7 years (Sigourney et al. 2006). In general, Atlantic halibut spawn once per year in synchronous groups during late winter through early spring (Neilson et al. 1993) and females can produce up to 7 million eggs per year depending on size (Haug & Gulliksen 1988). Spawning is believed to occur in waters of the upper continental slope at depths below 200 m (Scott & Scott 1988). Halibut eggs are buoyant but drift suspended at water depths of 54 - 90 m (Taning 1936). Incubation times are 13 - 20 days depending on temperature (Blaxter et al. 1983); how long halibut live in the plankton after hatching is not known.

Population Status: Atlantic halibut is overfished, but overfishing is not occurring, as of 2010. Survey indices are highly variable because the NEFSC trawl surveys catch low numbers of halibut. The spring survey abundance index suggested a relative increase during the late 1970s to the early 1980s, a decline during the 1990s, and an increase since the late 1990s. Biomass has been stable (B_{2010} = 1,700 mt) and well below $B_{MSY\ proxy}$ (49,000 mt) since the late 1800s. Fishing mortality has been below F_{msy} since 1995 (NEFSC 2012b).

6.3.1.6 Atlantic Wolffish

Life History: Atlantic wolffish, *Anarhichas lupus*, is a benthic fish distributed on both sides of the North Atlantic Ocean. In the northwest Atlantic, the species occurs from Davis Straits off of Greenland to Cape Cod and sometimes in southern New England and New Jersey waters (Collette & Klein-MacPhee 2002). In the Georges Bank-Gulf of Maine region, abundance is highest in the southwestern portion at depths of 263 - 394 ft (80 - 120 m), but wolffish are also found in waters from 131 - 787 ft (40 - 240 m) (Nelson & Ross 1992) and at temperatures of 29.7º - 50.4º F (-1.3º - 10.2º C) (Collette & Klein-MacPhee 2002). They prefer complex benthic habitats with large stones and rocks (Pavlov & Novikov 1993). Atlantic wolffish are mostly sedentary and solitary, except during mating season. There is some evidence of a weak seasonal shift in depth between shallow water in spring and deeper water in fall (Nelson & Ross 1992). Most individuals mature by age 5-6 when they reach ~18.5 in (47 cm) total length (Nelson & Ross 1992; Templeman 1986). Northern wolffish mature at smaller sizes than faster growing southern fish. Peak spawning is believed to occur from September to October for Gulf of Maine-Georges Bank wolffish (Collette & Klein-MacPhee 2002), though laboratory studies have shown that wolffish can spawn most of the year (Pavlov & Moksness 1994). Eggs are laid in masses, and males are thought to brood for several months. Incubation time is dependent on water temperature and may be 3 - 9 months. Larvae and early juveniles are pelagic between 20 - 40 mm TL, with settlement beginning by 50 mm TL (Falk-Petersen & Hansen 1991).

Population Status: Abundance and biomass of Atlantic wolffish generally has declined over the last two to three decades. On February 10, 2009, the Council voted to include wolffish in the multispecies management unit, impose a prohibition on retention of wolffish by commercial and (private, party and charter) recreational fishermen, and to designate wolffish EFH. Atlantic

wolffish are encountered infrequently on NEFSC bottom trawl surveys and there is uncertainty as to whether the NEFSC surveys adequately sample this species (NDPSWG 2009). Atlantic wolffish continues to be considered a data poor species. An assessment update in 2012 determined that the stock is overfished, with current SSB at 29% of SSB_{MSY}, but overfishing is not occurring (F_{2010} is 21% of F_{MSY}). The "overfished" status remains unchanged since the 2008 assessment, but the overfishing status has changed from "unknown" to "overfishing not occurring" (NEFSC 2012b).

6.3.2 Non-Groundfish Species

The Northeast multispecies fishery interacts with fisheries for several other species, including: Spiny Dogfish, Skates, Monkfish, Summer Flounder, American lobster, Whiting (Silver Hake), Loligo Squid, and Atlantic Sea Scallops.

6.3.2.1 Spiny Dogfish

Life History: Spiny dogfish, *Squalus acanthias*, occurs in the western North Atlantic from Labrador to Florida. Spiny dogfish is considered to be a unit stock off the coast of New England. In summer, dogfish migrate northward to the Gulf of Maine-Georges Bank region and into Canadian waters. They return southward in autumn and winter. Spiny dogfish tend to school by size and, when mature, by sex. The species bears live young, with a gestation period of 18 – 22 months, and produce 2 - 15 pups (average of 6). Size at maturity for females is ~31 in (80 cm), but can vary from 31 - 33 in (78 - 85 cm) depending on the abundance of females (NEFSC 2013f).

Population and Management and Status: The NEFMC and MAFMC jointly manage spiny dogfish FMP for federal waters and the Atlantic States Marine Fisheries Commission (ASMFC) has a state waters plan. Spawning stock biomass of spiny dogfish declined rapidly in response to a directed fishery during the 1990's. NFMS initially implemented management measures for spiny dogfish in 2001. These measures have been effective in reducing landings and fishing mortality. Based upon the 2009 NEFSC stock assessment, the stock is not presently overfished and overfishing is not occurring. NMFS declared the spiny dogfish stock rebuilt for the purposes of federal management in May 2010 (ref?).

6.3.2.2 Skates

Life History: There are seven species in the Northeast Region skate complex: little skate (*Leucoraja erinacea*), winter skate (*L. ocellata*), barndoor skate (*Dipturus laevis)*, thorny skate (*Amblyraja radiata*), smooth skate (*Malacoraja senta*), clearnose skate (*Raja eglanteria*), and rosette skate (*L. garmani*). The barndoor skate is the most common skate in the Gulf of Maine, on Georges Bank, and in southern New England. Georges Bank and southern New England is the center of distribution for the little and winter skates in the Northeast Region. The thorny and smooth skates typically occur in the Gulf of Maine. The clearnose and rosette skates have a more southern distribution, and occur primarily in southern New England and the Chesapeake Bight. Skates are not known to undertake large-scale migrations, but move seasonally with changing water temperature; they move offshore in summer and early autumn and then return inshore during winter and spring. Skates lay eggs enclosed in a hard, leathery case commonly called a mermaid's purse. Incubation time is 6 - 12 months, with the young having the adult

form at the time of hatching. Catches of these species are largely interrelated with the NE multispecies, monkfish, and scallop fisheries (NEFSC 2013f).

Population and Management and Status: NMFS implemented the Northeast Skate Complex Fishery Management Plan (Skate FMP) in September 2003 (NEFMC 2003). The FMP required by both dealers and vessels to report skate landings by species. Possession prohibitions of barndoor, thorny, and smooth skates in the Gulf of Maine were also provisions of the FMP. The FMP implemented a trip limit of 10,000 lbs (4,536 kg) for winter skate, and required fishermen to obtain a Letter of Authorization to exceed trip limits for the little skate bait fishery. In 2010, Amendment 3 to the Skate FMP implemented a rebuilding plan for smooth skate and established an ACL and annual catch target for the skate complex, total allowable landings for the skate wing and bait fisheries, and seasonal quotas for the bait fishery. Possession limits were reduced, in-season possession limit triggers were implemented, as well as other measures to improve management of the skate fisheries. Due to insufficient information about the population dynamics of skates, there remains considerable uncertainty about the status of skate stocks. Based on NEFSC bottom trawl survey data through autumn 2011/spring 2012, one skate species was overfished (thorny) and overfishing was not occurring in any of the seven skate species. Skate landings have generally increased since 2000. The landings and catch limits proposed by Amendment 3 have an acceptable probability of promoting biomass growth and achieving the rebuilding (biomass) targets for thorny skates. Modest reductions in landings and a stabilization of total catch below the median relative exploitation ratio should cause skate biomass and future yield to increase.

6.3.2.3 Monkfish

Life History: Monkfish, *Lophius americanus*, (i.e. "goosefish"), occur in the western North Atlantic from the Grand Banks and northern Gulf of St. Lawrence south to Cape Hatteras, North Carolina. Monkfish occur from inshore areas to depths of at least 2,953 ft (900 m). Monkfish undergo seasonal onshore-offshore migrations, which may relate to spawning or possibly to food availability. Female monkfish begin to mature at age 4 with 50% of females maturing by age 5 (~17 in [43 cm]). Males generally mature at slightly younger ages and smaller sizes (50% maturity at age 4.2 or 14 in [36 cm]). Spawning takes place from spring through early autumn. It progresses from south to north, with most spawning occurring during the spring and early summer. Females lay a buoyant egg raft or veil that can be as large as 39 ft (12 m) long and 5 ft (1.5 m) wide, and only a few mm thick. The larvae hatch after 1 - 3 weeks, depending on water temperature. The larvae and juveniles spend several months in a pelagic phase before settling to a benthic existence at a size of ~3 in (8 cm) (NEFSC 2013f).

Population and Management and Status: NMFS implemented the Monkfish FMP in 1999 (NEFMC 1998b). The FMP included measures to stop overfishing and rebuild the stocks through a number of measures. These measures included:

- Limiting the number of vessels with access to the fishery and allocating DAS to those vessels;
- Setting trip limits for vessels fishing for monkfish; minimum fish size limits;
- Gear restrictions;
- Mandatory time out of the fishery during the spawning season; and
- A framework adjustment process.

The Monkfish FMP defines two management areas for monkfish (northern and southern), divided roughly by an east-west line bisecting Georges Bank. As of 2009 data, monkfish in both management areas are not overfished and overfishing is not occurring. This is an improvement from recent assessments (NEFSC 2010).

6.3.2.4 Summer Flounder

Life History: Summer flounder, *Paralichthys dentatus*, occur in the western North Atlantic from the southern Gulf of Maine to South Carolina. Summer flounder are concentrated in bays and estuaries from late spring though early autumn, when an offshore migration to the outer continental shelf is undertaken. Spawning occurs during autumn and early winter, and the larvae are transported toward coastal areas by prevailing water currents. Development of post larvae and juveniles occurs primarily within bays and estuarine areas. Most fish are sexually mature by age 2. Female summer flounder may live up to 20 years, but males rarely live for more than 10 years. Growth rates differ appreciably between the sexes with females attaining weights up to 11.8 kg (26 lbs.) (NEFSC 2013f).

Population and Management and Status: The FMP was developed by the MAFMC in 1988, and scup and black sea bass were later incorporated into the FMP. Amendment 2, implemented in 1993, established a commercial quota allocated to the states, a recreational harvest limit, minimum size limits, gear restrictions, permit and reporting requirements, and an annual review process to establish specifications for the coming fishing year. In 1999, Amendment 12 revised the overfishing definitions for all three species, established rebuilding programs, addressed bycatch and habitat issues and established a framework adjustment procedure for the FMP to allow for a streamlined process for relatively minor changes to management measures (MAFMC 1998). The stock is not overfished and overfishing is not occurring, although the stock is still rebuilding (NEFSC 2008a).

6.3.2.5 American Lobster

Life History: American lobster, *Homarus americanus*, occurs in continental shelf waters from Maine to North Carolina. There are three biological stock units: the Gulf of Maine, Georges Bank, and Southern New England. The American lobster is long-lived and known to reach more than 40 pounds in body weight (Wolff 1978). Lobsters are encased in a hard exoskeleton that is periodically cast off (molted) for growth and mating to occur. Eggs are carried under the female's abdomen during a 9 - 12 month incubation period. Larger lobsters produce eggs with greater energy content and thus, may produce larvae with higher survival rates (Attard & Hudon 1987). Seasonal timing of egg extrusion and larval hatching is somewhat variable among areas and may also vary due to seasonal weather patterns. Hatching tends to occur over a four month period from May – September, occurring earlier and over a longer period in the southern part of the range. The pelagic larvae molt four times before they resemble adults and settle to the bottom. Lobsters molt more than 20 times over 5 - 8 years before they reach the minimum legal harvest size.

Population and Management and Status: The states and NMFS cooperatively manage the American lobster resource through the ASMFC. Inshore landings have increased steadily since the early 1970s. States have jurisdiction for implementing measures in state waters, while NMFS implements complementary regulations in federal waters. Fishing effort is intense and increasing throughout much of the range of the species. The majority of the landings are reportedly

harvested from state waters. While each stock area has an inshore and offshore component, Gulf of Maine and Southern New England areas support predominantly inshore fisheries and the Georges Bank supports a predominantly offshore fishery. The most recent 2009 Stock Assessment Report concluded that "(t)he American lobster fishery resource presents a mixed picture, with stable abundance for much of the Gulf of Maine stock, increasing abundance for the Georges Bank stock, and decreased abundance and recruitment yet continued high fishing mortality for the Southern New England stock" (ASMFC 2009).

6.3.2.6 Whiting (Silver Hake)

Life History: Silver hake, also known as whiting, Merluccius bilinearis, range primarily from Newfoundland to South Carolina. Silver hake are fast swimmers with sharp teeth, and are important fish predators that also feed heavily on crustaceans and squid (Lock & Packer 2004). In U.S. waters, two stocks have been identified based on differences of head and fin lengths (Almeida 1987), otolith morphometrics (Bolles & Begg 2000), otolith growth differences, and seasonal distribution patterns (Lock & Packer 2004). The northern silver hake stock inhabits Gulf of Maine - Northern Georges Bank waters, and the southern silver hake stock inhabits Southern Georges Bank - Middle Atlantic Bight waters. Silver hake migrate in response to seasonal changes in water temperatures, moving toward shallow, warmer waters in the spring. They spawn in these shallow waters during late spring and early summer and then return to deeper waters in the autumn (Brodziak et al. 2001). The older, larger silver hake especially prefer deeper waters. During the summer, portions of both stocks can be found on Georges Bank, whereas during the winter fish in the northern stock move to deep basins in the Gulf of Maine, while fish in the southern stock move to outer continental shelf and slope waters. Silver hake are widely distributed, and have been observed at temperature ranges of 2-17° C (36-63° F) and depth ranges of 11-500 m (36-1,640 ft). However, they are most commonly found between 7-10º C (45-50º F) (Lock & Packer 2004).

Population Management and Status: Due to their abundance and availability, silver hake have supported important U.S. and Canadian fisheries as well as distant-water fleets. Landings increased to 137,000 mt in 1973 and then declined sharply with increased restrictions on distant-water fleet effort and implementation of the Magnuson Fishery Conservation and Management Act (MFCMA) in 1977. U.S. landings during 1987-1996 were relatively stable, averaging 16,000 mt per year, but have gradually declined to a historic low of 6,800 mt in 2005.

The otter trawl remains the principal gear used in the U.S. fishery, and recreational catches have been low since 1985. Silver hake are managed under the NEFMC's Northeast Multispecies FMP ("non-regulated multispecies" category). In 2000, the NEFMC implemented Amendment 12 to this FMP, and placed silver hake into the "small mesh multispecies" management unit, along with red hake and offshore hake. This amendment established retention limits based on net mesh size, adopted overfishing definitions for northern and southern stocks, identified essential fish habitat for all life stages, and set requirements for fishing gear (NEFMC 2000). In 2005, the 3-year average exploitation index for 2003-2005 was below the FMSY proxy and the 3-year average biomass index remained above the ½ $B_{MSY\ proxy}$, indicating that the stock is not overfished and overfishing is not occurring.

6.3.2.7 Loligo Squid

Life History: Longfin inshore squid (*Loligo pealeii*) are distributed primarily in continental shelf waters located between Newfoundland and the Gulf of Venezuela (Cohen 1976; Roper et al. 1984). In the northwest Atlantic Ocean, longfin squid are most abundant in the waters between Georges Bank and Cape Hatteras where the species is commercially exploited. The stock area extends from the Gulf of Maine to Cape Hatteras. Distribution varies seasonally. North of Cape Hatteras, squid migrate offshore during late autumn to overwinter in warmer waters along the shelf edge and slope, and then return inshore during the spring where they remain until late autumn (Jacobson 2005). The species lives for about nine months, grows rapidly, and spawns year-round with peaks during late spring and autumn. Individuals hatched in summer grow more rapidly than those hatched in winter and males grow faster and attain larger sizes than females (Brodziak & Macy III 1996).

Population Management and Status: The domestic fishery occurs primarily in Southern New England and Mid-Atlantic waters, but some fishing also occurs along the edge of Georges Bank. Fishing patterns reflect seasonal Loligo distribution patterns and effort is generally directed offshore during October through April and inshore during May through September. The fishery is dominated by small-mesh otter trawlers, but near-shore pound net and fish trap fisheries occur during spring and summer. Since 1984, annual offshore landings have generally been three-fold greater than inshore landings. The stock is managed by the MAFMC Council under the Atlantic Mackerel, Squid, and Butterfish FMP. Management measures for the L. pealeii stock include annual TACs, which have been partitioned into seasonal quotas since 2000 (trimesters in 2000 and quarterly thereafter), a moratorium on fishery permits, and a minimum codend mesh size of 1 7/8 inches.

6.3.2.8 Atlantic Sea Scallops

Life History: Sea scallops, *Placopecten magellanicus,* are distributed in the northwest Atlantic Ocean from Newfoundland to North Carolina, mainly on sand and gravel sediments where bottom temperatures remain below 20^{o}C (68^{o}F). North of Cape Cod, concentrations generally occur in shallow water less than 40 m (22 fathoms) deep. South of Cape Cod and on Georges Bank, sea scallops typically occur at depths 25 - 200 m (14 - 110 fathoms), with commercial concentrations generally 35 - 100 m (19 - 55 fathoms). Sea scallops are filter feeders, feeding primarily on phytoplankton, but also on microzooplankton and detritus (Hart & Chute 2004). Sea scallops grow rapidly during the first several years of life. Between ages 3 and 5, they commonly increase 50 - 80% in shell height and quadruple their meat weight. Sea scallops have been known to live more than 20 years. They usually become sexually mature at age 2, but individuals younger than age 4 probably contribute little to total egg production. Sexes are separate and fertilization is external. Spawning usually occurs in late summer and early autumn; spring spawning may also occur, especially in the Mid-Atlantic Bight. Sea scallops are highly fecund; a single large female can release hundreds of millions of eggs annually. Larvae remain in the water column for four to seven weeks before settling to the bottom. Sea scallops attain commercial size at about four to five years old, though historically, three year olds were often exploited. Sea scallops have a somewhat uncommon combination of life-history attributes: low mobility, rapid growth, and low natural mortality (NEFSC 2013f).

Population and Management and Status: The commercial fishery for sea scallops is conducted year round, primarily using offshore New Bedford style scallop dredges. A small percentage of the fishery employs otter trawls, mostly in the Mid-Atlantic. The principal U.S. commercial fisheries are in the Mid-Atlantic (from Virginia to Long Island, New York) and on Georges Bank and neighboring areas, such as the Great South Channel and Nantucket Shoals. There is also a small, primarily inshore fishery for sea scallops in the Gulf of Maine. The NEFMC established the Scallop FMP in 1982. The scallop resource was last assessed in 2010, and it was not overfished, and overfishing was not occurring (NEFSC 2010). The Scallop PDT has evaluated biomass and fishing mortality since, and based on 2012 estimates, biomass is 119,000 mt, well above the threshold for an overfished stock (1/2 B_{MSY} = 62,000 mt), and almost at B_{MSY} (125,000 mt). The estimate of fishing mortality overall is 0.34, above the target F of 0.32, but below the overfishing limit threshold of 0.38. Total catch has been stable at about 20,000-30,000 mt since 2001, up from about 5,000 mt harvests of the late 1990s.

6.3.3 Bycatch

The MSA defines bycatch as fish which are harvested in a fishery, but which are not sold or kept for personal use, including economic discards and regulatory discards. Fish released alive under a recreational catch and release fishery management program are not included. The MSA requires that, to the extent practicable, bycatch and the mortality of bycatch that cannot be avoided should both be minimized. To consider whether these objectives are being met, bycatch must be reported and assessed. To this end, the MSA requires that a standardized reporting methodology assess the amount and type of bycatch occurring in a fishery. The primary tools used to report bycatch in the multispecies fishery are the Vessel Trip Report system (VTR) and the NEFSC Observer Program. Each permitted vessel is required to report discards and landings in VTRs submitted on a periodic basis. The sea sampling/observer program places personnel on boats to observe and estimate the amount of discards on a haul-by-haul basis.

[More information to be provided in DEIS.]

6.4 PROTECTED RESOURCES

6.4.1 Species Present in the Area

Numerous protected species inhabit the environment within the Northeast Multispecies FMP management unit (Table 11). These species are under NMFS jurisdiction and are afforded protection under the Endangered Species Act of 1973 (ESA) and/or the Marine Mammal Protection Act of 1972 (MMPA).

Table 11 - Species protected under the Endangered Species Act and/or Marine Mammal Protection Act that may occur in the operation area for the Northeast multispecies fishery

Species	Status	Potentially affected by this action?
Cetaceans		
North Atlantic right whale (*Eubalaena glacialis*)	Endangered	Yes
Humpback whale (*Megaptera novaeangliae*)	Endangered	Yes
Fin whale (*Balaenoptera physalus*)	Endangered	Yes
Sei whale (*Balaenoptera borealis*)	Endangered	Yes
Blue whale (*Balaenoptera musculus*)	Endangered	No
Sperm whale (*Physeter macrocephalus*	Endangered	No
Minke whale (*Balaenoptera acutorostrata*)	Protected	Yes
Pilot whale (*Globicephala spp.*)[a]	Protected	Yes
Risso's dolphin (*Grampus griseus*)	Protected	Yes
Atlantic white-sided dolphin (*Lagenorhynchus acutus*)	Protected	Yes
Short Beaked Common dolphin (*Delphinus delphis*)[b]	Protected	Yes
Spotted dolphin (*Stenella frontalis*)	Protected	No
Bottlenose dolphin (*Tursiops truncatus*)[c]	Protected	Yes
Harbor porpoise (*Phocoena phocoena*)	Protected	Yes
Sea Turtles		
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered	Yes
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered	Yes
Green sea turtle (*Chelonia mydas*)	Endangered[d]	Yes
Loggerhead sea turtle (*Caretta caretta*), Northwest Atlantic DPS	Threatened	Yes
Hawksbill sea turtle (*Eretmochelys imbricate*)	Endangered	No
Fish		
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered	No
Atlantic salmon (*Salmo salar*)	Endangered	Yes
Atlantic sturgeon *(Acipenser oxyrinchus)*		
Gulf of Maine DPS	Threatened	Yes
New York Bight DPS, Chesapeake Bay DPS, Carolina DPS & South Atlantic DPS	Endangered	Yes
Pinnipeds		
Harbor seal (*Phoca vitulina*)	Protected	Yes
Gray seal (*Halichoerus grypus*)	Protected	Yes
Harp seal (*Phoca groenlandicus*)	Protected	Yes
Hooded seal (*Cystophora cristata*)	Protected	Yes

Notes:

a There are two species of pilot whales: short finned (*G. melas melas*) and long finned (*G. macrorhynchus*). Due to the difficulties in identifying the species at sea, they are often just referred to as *Globicephala spp.*

b Prior to 2008, this species was called "common dolphin."

c This includes the Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal Stocks of Bottlenose Dolphins.

d 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.

6.4.2 Species and Critical Habitat Not Likely to be Affected by the Proposed Action

Based on available information, it has been determined that this action is not likely to affect shortnose sturgeon, hawksbill sea turtles, blue whales, or sperm whales. Further, this action is not likely to adversely affect Atlantic salmon, the Northwest Atlantic Distinct Population Segment (DPS) of loggerhead or North Atlantic right whale critical habitats. The following discusses the rationale for these determinations.

6.4.2.1 Shortnose Sturgeon

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. The species is anadromous in the southern portion of its range (i.e., south of Chesapeake Bay), while some northern populations are amphidromous (NMFS 2010a). Since the multispecies fishery will not operate in or near the rivers where concentrations of shortnose sturgeon are most likely found, direct (e.g., interaction with gear) and indirect (e.g., prey removal, habitat modification) impacts to shortnose sturgeon are not expected. Based on this information, it is extremely unlikely that the proposed action will affect shortnose sturgeon.

6.4.2.2 Hawksbill Sea Turtle

The hawksbill turtle is uncommon in the waters of the continental U.S. Although individuals have been sighted along the east coast as far north as Massachusetts, east coast sightings north of Florida are rare (NMFS & USFWS 1993). Hawksbills prefer coral reefs, such as those found in the Caribbean and Central America, and prefer nesting areas in the western North Atlantic include Puerto Rico and the Virgin Islands. As the multispecies fishery will not occur in waters that are typically used by hawksbill sea turtles, direct (e.g., interaction with gear) and indirect (e.g., prey removal, habitat modification) impacts to hawksbills are not expected. Based on this information, it is extremely unlikely that the proposed action will affect hawksbill sea turtles.

6.4.2.3 Blue Whale

Blue whales do not regularly occur in waters of the U.S. EEZ (Waring et al. 2011), and therefore, in the area of the multispecies fishery. 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 (CeTAP 1982). Additionally, calving for the species occurs in low latitude waters outside of the area where the multispecies fishery operates. There have been no observed fishery-related mortalities or serious injuries to blue whales to date (Waring, et al. 2011). Based on this information, the multispecies fishery will not overlap with blue whale occurrence or habitat. As a result, no blue whales will be exposed to any direct or indirect effects of the proposed action and thus, it is extremely unlikely that the proposed action will affect blue whales.

6.4.2.4 Sperm Whale

Sperm whales 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. 2014). The average depth over which sperm whale sightings occurred during the Cetacean and Turtle Assessment Program surveys was 5,879 ft (1,792 m) (CeTAP 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). In contrast, the multispecies fishery will operate in shallower continental shelf waters, and thus, sperm whales are unlikely to occur in water depths where the multispecies fishery will operate. Based on this information, and the fact that there have been no observed fishery-related mortalities or serious injuries to sperm whales to date (Waring, et al. 2014), no sperm whales will be exposed to any direct or indirect effects of the proposed action. As a result, it is extremely unlikely that the proposed action will affect sperm whales.

6.4.2.5 North Atlantic Right Whale Critical Habitat

NMFS designated the Great South Channel and Cape Cod and Massachusetts Bays as North Atlantic right whale critical habitat in June 1994. 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 North Atlantic right whale. Further, mesh sizes used in the multispecies fishery does not significantly impact the right whale's planktonic food supply (59 FR 28793). Thus, right whale food sources in areas designated as critical habitat will not be adversely affected by the operation of the multispecies fishery. Based on this information, the multispecies fishery is likely to result in negligible effects on the physical habitat and therefore, operation of the multispecies fisheries is not expected to result in a significant impact on right whale critical habitat. For these reasons, North Atlantic right whale critical habitat will not be considered further in this document.

6.4.2.6 Northwest Atlantic Distinct Population Segment of Loggerhead Sea Turtle DPS Critical Habitat

NMFS issued a final rule to designate critical habitat for the Northwest Atlantic Ocean DPS of the loggerhead sea turtle within the Atlantic Ocean and the Gulf of Mexico on July 10, 2014. Specific areas for designation include 38 occupied marine areas within the range of the Northwest Atlantic Ocean DPS. These areas contain one or a combination of habitat types: Nearshore reproductive habitat, winter area, breeding areas, constricted migratory corridors, and/or Sargassum habitat. Constricted migratory corridors and/or winter critical habitat has been designated from 33'30°N to 36°N; the remaining critical habitat has been designated south of 35°N (79 FR 39856). As the multispecies fisheries southern extent is 35°N, a small portion of the designated constricted migratory corridor and winter critical habitat will occur in the operational area of the fishery.

The constricted migratory corridor off North Carolina serves as a concentrated migratory pathway for loggerheads transiting to neritic foraging areas in the north, and back to winter, foraging, and/ or nesting areas in the south. The majority of loggerheads pass through this migratory corridor in the spring (April - June) and fall (September - November), but loggerheads are also present in this area from April - November and, given variations in water temperatures and individual turtle migration patterns, these time periods are variable. The primary elements of winter critical habitat are: 1.) water temperatures above 10° C from November - April; 2.) continental shelf waters in proximity to the western boundary of the Gulf Stream; and 3.) water depths of 20 - 100 m (79 FR 39856). As the multispecies fishery will not modify the physical characteristics of either designated critical habitat or interfere with sea turtles continued use of these essential areas, the multispecies fishery is not expected to result in any significant impacts to sea turtle constricted migratory corridor or winter critical habitats. As all other designated critical habitat is outside of the range of the multispecies fishery, no effects to these areas will be

experienced by the fishery. For these reasons, the Northwest Atlantic DPS of loggerhead sea turtle critical habitat will not be considered further in this document.

6.4.2.7 Atlantic Salmon Critical Habitat

NMFS issued a final rule designating critical habitat for the Atlantic salmon (*Salmo salar*) Gulf of Maine Distinct Population Segment on June 19, 2009. NMFS designated as critical habitat 45 specific areas occupied by Atlantic salmon at the time of listing that comprise approximately 19,571 km of perennial river, stream, and estuary habitat and 799 km^2 of lake habitat within the range of the GOM DPS and in which are found those physical and biological features essential to the conservation of the species. The entire occupied range of the GOM DPS in which critical habitat is designated is within the State of Maine. Specific areas within the marine environment where Atlantic salmon live were not designated as critical habitat, because the specific physical and biological features, at the time salmon were listed, that are essential to the conservation of the species could not be identified (FR 29300). Thus, it is unlikely that the proposed action will have an adverse effect on Atlantic salmon's designated critical habitat.

6.4.3 Species Potentially Affected by the Proposed Action

The multispecies fishery may affect multiple protected species of cetacean, sea turtles, pinnipeds, and fish (Table 11). Of primary concern is the potential for the fishery to interact (e.g., bycatch, entanglement) with these species. To understand the potential risk of an interaction, it is necessary to consider:

1.) Species occurrence in the affected area and how the fishery will overlap in time and space with this occurrence; and
2.) Records of protected species interaction with particular fishing gear types.

In the following sections, the affected area for which the multispecies fishery operates will be defined as the sub-regions that comprise the fishery (Figure 5). The sub-regions are as follows:

- Gulf of Maine: bounded on the east by Browns Bank, on the north by the Scotian Shelf, on the west by the New England states, and on the south by Cape Cod and the northern edge of Georges Bank.

- Georges Bank: shallow (3 - 150 m), elongated (100 mi x 20 mi) extension of the continental shelf. It is bounded on the west by the Great South Channel, and on the north by the Gulf of Maine.

- Southern New-England: includes the area of the continental shelf south of Cape Cod, including the Great South Channel, extending south to Hudson Canyon. The area is bounded on the west by the eastern U.S. shoreline.

- Mid-Atlantic: includes the area of the continental shelf from southern limit of the SNE (e.g., Hudson Canyon) south to Cape Hatteras, North Carolina. It is bordered on the west by the U.S. eastern shoreline and to the east by the EEZ.

6.4.3.1 Sea Turtles

Status and Trends. The following ESA-listed species of sea turtles occur in the affected environment of the multispecies fisheries: Loggerhead (Northwest Atlantic DPS), Kemp's ridley, Green, and Leatherback (Table 12). For additional information on the biology, status, and range wide distribution of each sea turtle species, refer to: NMFS and (2013a) NMFS and USFWS (1991; 1992a; b; 2007a; b; c; d; 2009; 2011).

Table 12 - ESA-listed sea turtles occurring in the affected environment

Sea Turtle Species	Listed Under the ESA
Loggerhead (Northwest Atlantic DPS)	Yes-Threatened
Kemp's ridley	Yes-Endangered
Green	Yes-Endangered
Leatherback	Yes-Endangered

Occurrence and Distribution. Leatherback, Kemp's ridley, green, and the Northwest Atlantic Distinct Population Segment (DPS) of loggerhead sea turtles are found throughout the waters of the Northwest Atlantic Ocean (i.e., from southern Canada to Florida) (NMFS & USFWS 1991; 1992a; b; 2007a; b; c; d; 2011). Sea turtles; however, are not uniformly distributed in time and space in these waters. Based on seasonal changes in sea surface temperature (SST), there is a latitudinal shift in sea turtle distribution and habitat use. In general, sea turtles move from lower to higher latitudes as SST rises ($\geq 11^{o}$C) in the spring (i.e., April/May); a reversal of this trend occurs in the fall (i.e., October/November) when water temperatures decline (Braun-McNeill & Epperly 2004; Braun-McNeill et al. 2008; Dodge et al. 2014; Epperly et al. 1995; Griffin et al. 2013; James et al. 2005; Mansfield et al. 2009; Morreale & Standora 2005; Morreale 1999; Shoop & Kenney 1992). The seasonal movements of sea turtles, however, are not random; sea turtles are found in areas of suitable habitat necessary to complete essential life functions (e.g., foraging, overwintering, nesting). In general, the shift in sea turtle distribution to higher latitudes as SST increases corresponds to moving into important foraging areas (i.e., areas where prey resources are concentrated and abundant (e.g., Chesapeake Bay, Delaware Bay, Long Island Sound, Cape Cod Bay)). Movements to the lower latitudes, when temperatures decline, correspond to overwintering areas (Braun-McNeill & Epperly 2004; Braun-McNeill, et al. 2008; Dodge, et al. 2014; Epperly, et al. 1995; Griffin, et al. 2013; James, et al. 2005; Mansfield, et al. 2009; Morreale & Standora 2005; Morreale 1999; NMFS & USFWS 1991; 1992a; b; 2007a; b; c; d; 2009; 2011; Shoop & Kenney 1992). Although sea turtle migrations and distribution in neritic habitat are largely correlated to environmental conditions such as SST (Braun-McNeill, et al. 2008; Coles & Musick 2000), Mansfield et al. (2009) postulate that it is also probable that seasonal philopatry or site fidelity plays a strong role in determining habitat use among juvenile loggerheads. Mansfield et al (2009) further state that these changes may be 'predictable' and cyclical, driven by natural environmental and/or resource fluctuations (e.g., the thermal environment becomes seasonally inhospitable to the animal), or they may be due to changes in habitat quality over time (e.g., declines in prey availability).

As the affected area of the multispecies fishery occurs in waters north of 35^{o}N, and sea turtles are primarily present in waters from Virginia to the GOM from approximately April through

November, and waters off North Carolina throughout the year (sea turtles are known to winter in waters 35N and south; NMFS 2013a), the multispecies fisheries and sea turtles are likely to co-occur during these months. To further assist in understanding how the multispecies fisheries overlaps in time and space with the occurrence of sea turtles, Table 13 gives an overview of sea turtle seasonal occurrence and distribution in the continental shelf waters of the affected environment of the multispecies fishery. For additional information on the biology, status, and range wide distribution of each sea turtle species, refer to: NMFS (2013a) and NMFS and USFWS (2009b; 1991; 1992a; b; 2007a; b; c; d; 2011).

Table 13 - Sea turtle occurrence in the GOM, GB, SNE, and Mid-Atlantic sub-regions of the multispecies fisheries

Family/Species	Approximate Months of Presence	Prevalence\High Use Areas
Cheloniidae: Loggerhead, Green, Kemp's ridley	**GOM/GB**: June - Mid-September/Oct. **SNE**: May - Oct. (potential for presence into November) **Mid-Atl**: April –November in waters 35°N, south throughout the year	• Less common in waters north of 42°N. • South of 42°N, seasonally (between April-November) distributed throughout all continental shelf waters of GOM, GB, SNE, and Mid-Atl sub-regions.
Dermochelyidae: Leatherback	**GOM/GB/SNE**: June-December **Mid-Atl**: April-December	• Distributed throughout all continental shelf waters of the GOM, GB, SNE, and Mid-Atl sub-regions.

Notes: Information presented in table is representative of sea turtle occurrence in the Northwest Atlantic continental shelf waters out to the 2,000 m isobath. Additionally, as sea surface temperature is a key determinant in sea turtle occurrence in waters north of 35°N, months in which sea turtles occur may shift slightly based on changes in sea surface temperature.

Sources: Braun-McNeill and Epperly (2004), Dodge et al. (2014), Griffin et al. (2013), James et al. (2005; 2006), Mansfield et al. (2009), Morreale (1999), Morreale and Standora (2005), Murray (2009), Murray and Orphanides (2013), NMFS (2013a), NMFS & USFWS (1991; 1992a; b; 2007a; b; c; d; 2009; 2011); NOAA (2007), Shoop and Kenney (1992), and Warden (2011).

6.4.3.2 Large Cetaceans

Status and Trends.

Table 14 includes the species of large whales occurring in the affected area. For additional information on the biology, status, and distribution of each species, refer to: Waring (2014) and NMFS (1991; 2005; 2010b; 2011a; 2012b).

Occurrence and Distribution. Right, humpback, fin, sei, and minke whales are found throughout the waters of the Northwest Atlantic Ocean. In general, these species follow an annual pattern of migration between low latitude wintering/calving grounds (south of 35°N) and high latitude spring/summer foraging grounds (primarily north of 41°N) (NMFS 1991; 2005; 2010b; 2011a; 2012b; Waring, et al. 2014). This, however, is a simplification of whale movements, particularly as it relates to winter movements. It remains unknown if all individuals of a population migrate to low latitudes in the winter, although, increasing evidence suggests that

Table 14 - Species of large whales occurring in the affected area

Species	Listed Under the ESA	Protected Under the MMPA	Minimum Population Size	Population Trend	MMPA Strategic Stock[42]
North Atlantic Right Whale	Yes	Yes	454	positive and slowly accelerating	Yes
Humpback Whale	Yes	Yes	823	positive	Yes
Fin Whale	Yes	Yes	2,817	unknown	Yes
Sei Whale	Yes	Yes	236	unknown	Yes
Minke Whale	No	Yes	16,199	unknown	No

for some species (e.g., right and humpback whales), some portion of the population remains in higher latitudes throughout the winter (Brown et al. 2002; Clapham et al. 1993; Cole et al. 2013; Khan et al. 2010; 2011; 2012; Khan et al. 2009; NOAA 2008; Swingle et al. 1993; Vu et al. 2012; Waring, et al. 2014). Although further research is needed to provide a clearer understanding of large whale movements and distribution in the winter, the distribution and movements of large whales to foraging grounds in the spring/summer is well understood. Movements of whales into higher latitudes coincide with peak productivity in these waters. As a result, the distribution of large whales in higher latitudes is strongly governed by prey availability and distribution, with large numbers of whales coinciding with dense patches of preferred forage (Baumgartner et al. 2003; Baumgartner & Mate 2003; Brown, et al. 2002; Kenney 2001; Kenney et al. 1986; Kenney et al. 1995; Mayo & Marx 1990; Payne et al. 1986; Payne et al. 1990; Schilling et al. 1992). It is important to note, these foraging areas are consistently returned to annually, and therefore, can be considered important, high use areas for whales.

As the affected area of the multispecies fishery occurs in waters north of 35^{o}N, and whales may be present in these waters throughout the year, the multispecies fisheries and large whales are likely to co-occur in the affected area. To further assist in understanding how the multispecies fisheries overlaps in time and space with the occurrence of large whales, Table 15 gives an overview of species occurrence and distribution in the continental shelf waters of the affected environment of the multispecies fishery. For additional information on the biology, status, and range wide distribution of each whale species, refer to: Waring et al. (2014) and NMFS (1991; 2005; 2010b; 2011a; 2012b).

[42] Strategic stock is defined under the MMPA as a marine mammal stock for which the level of direct human-caused mortality exceeds the PBR level; which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; or which is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA.

Table 15 - Large cetacean occurrence in the GOM, GB, SNE, and Mid-Atlantic sub-regions of the multispecies fisheries

Species	Prevalence in Affected Area	High Use Areas and Approximate Months of Occurrence (if known)
North Atlantic Right Whale	• Distributed throughout all continental shelf waters of the Mid-Atl, GOM, GB, and SNE sub-regions throughout the year. • Regularly move through the waters off the Mid-Atlantic states, including New Jersey, New York, Rhode Island, and Southern Massachusetts (migratory corridor to/from feeding and calving grounds; primarily November - April; Mid-Atl - SNE sub-regions). • Winter through summer (approximately December-July 31): Distributed in greatest densities in GOM and GB sub-regions (foraging grounds). • Increasing evidence of wintering areas (approximately November – January) in GOM sub-region (e.g., Cape Cod Bay, portions of the GOM (e.g., Jeffreys and Cashes Ledges, Jordan Basin), and Massachusetts Bay (e.g., Stellwagen Bank)	• Approximately April-July: Great South Channel and Georges Bank (foraging grounds) • Approximately January -May: Cape Cod and Massachusetts Bays (foraging grounds) • Approximately March - April: waters off the eastern shore of Cape Cod (foraging grounds)
Humpback	• Distributed throughout all continental shelf waters of the Mid-Atl, GOM, GB, and SNE sub-regions throughout the year. • Regularly move through the waters off the Mid-Atlantic states, including New Jersey, New York, Rhode Island, and Southern Massachusetts throughout the year (migratory corridor to/from feeding and calving grounds; Mid-Atl - SNE sub-regions). • Spring through fall (approximately March - November), distributed in greatest densities in the GOM and GB sub-regions (foraging grounds). • Increasing evidence of wintering areas (for juveniles) in Mid-Atl sub-region (e.g., waters in the vicinity of Chesapeake and Delaware Bays; peak presence approximately January - March).	From approximately March through November in: • GOM, • Massachusetts (esp. Stellwagen Bank) and Cape Cod Bays and • Georges Bank.
Fin	• Distributed throughout all continental shelf waters of the Mid-Atl, GOM, GB, and SNE sub-regions throughout the year. • Regularly move through the waters off the Mid-Atlantic states, including NJ, NY, RI, and Southern MA (migratory corridor to/from feeding and calving grounds; Mid-Atl through SNE sub-regions). Spring - fall (approx. Mar. – Aug.): distributed in greatest densities in the GOM and GB sub-regions; lower densities are found in these sub-regions in the fall (approx. Sept.-Nov.).	From approximately March through August in: • Massachusetts Bay (esp. Stellwagen Bank), • Great South Channel, • Waters off Cape Cod (~40-50 meter contour), • western GOM (esp. Jeffrey's Ledge), • Eastern perimeter of GB, and

Table 15 – Cont.

Fin (cont.)	• Wintering areas in mid-shelf areas east of NJ, Stellwagen Bank; and eastern perimeter of GB Bank (SNE, GB, and GOM)	• Mid-shelf area off the east end of Long Island.
Sei	• Uncommon in shallow, inshore waters of the Mid-Atl, SNE, GB, and GOM sub-regions; however, occasional incursions during peak prey availability and abundance. • Primarily found in deep waters along the shelf edge, shelf break, and ocean basins between banks. • Spring through summer, found in greatest densities in offshore waters of the GOM and GB sub-regions.	Throughout the spring and summer in: • GOM and • Georges Bank (esp. eastern and southwestern edge (Hydrographer Canyon) into Northeast Channel
Minke	• Spring through fall found in greatest densities in the GOM and GB sub-regions.	From approximately March - December (peak=July - October): in: • Massachusetts Bay (esp. Stellwagen Bank), • Cape Cod Bay, and • GOM

Notes: Information presented in table is representative of large cetacean occurrence in the Northwest Atlantic continental shelf waters out to the 2,000 meter isobath.

Sources: 50 CFR 224.105, Baumgartner et al. (2003), Brown et al. (2002), CETAP (1982), Clapham et al. (1993), Cole et al. (2013), Hain et al. (1992), Hamilton and Mayo (1990), Kenney et al. (1986), Kenney et al. (1995), Khan et al. (2009), Khan et al. (2010; 2011; 2012), NMFS (1991; 2005; 2010b; 2011a; 2012b), NOAA (2008), Payne (1984), Payne et al. (1990), Risch et al. (2013), Schevill et al. (1986), Swingle et al. (1993), Waring et al. (2014), Watkins and Schevill (1982), Winn et al. (1986) and Vu et al. (2012).

6.4.3.3 Small Cetacean

Status. Table 16 includes the species of small cetaceans (dolphins and porpoises) occurring in the affected area. For additional information on the biology, status, and range wide distribution of each small cetacean species, refer to Waring et al. (2014).

Occurrence and Distribution. Small cetaceans are found throughout the waters of the Northwest Atlantic Ocean. In the affected area, they can be found throughout the year from Cape Hatteras, NC (35°N), to the Canadian border (Waring, et al. 2014). Within this range; however, there are seasonal shifts in species distribution and abundance. As the affected area of the multispecies fishery occurs in waters north of 35°N, and small cetaceans may be present in these waters throughout the year, the multispecies fisheries and small cetaceans are likely to co-occur. To further assist in understanding how the multispecies fisheries overlaps in time and space with the occurrence of small cetaceans, an overview of species occurrence and distribution in the continental shelf waters of the affected environment of the multispecies fishery is provided in Table 17. For additional information on the biology, status, and range wide distribution of each species, refer to Waring et al. (2014).

Table 16 - Small cetaceans (dolphins and porpoises) occurring in the affected area

Species	Listed Under the ESA	Protected Under the MMPA	Minimum Population Size	Population Trend	MMPA Strategic Stock
Atlantic White Sided Dolphin	No	Yes	30,403	unknown	No
Short-Finned Pilot Whale	No	Yes	15,913	unknown	No
Long-Finned Pilot Whale	No	Yes	19,930	unknown	No
Rissos Dolphin	No	Yes	12,619	unknown	No
Short Beaked Common Dolphin	No	Yes	112,531	unknown	No
Harbor Porpoise	No	Yes	61,415	unknown	Yes
Bottlenose Dolphin (Western North Atlantic Offshore Stock)	No	Yes	56,053	unknown	No
Bottlenose Dolphin (Western North Atlantic Northern Migratory Coastal Stock)	No	Yes	8,620	unknown	Yes
Bottlenose Dolphin (Western North Atlantic Southern Migratory Coastal Stock)	No	Yes	6,326	unknown	Yes

Table 17 - Small cetacean occurrence in the GOM, GB, SNE, and Mid-Atlantic sub-regions of the multispecies fisheries

Species	Prevalence and Approximate Months of Occurrence (if known)
Atlantic White Sided Dolphin	• Distributed throughout the continental shelf waters (primarily to 100 meter isobath) of the Mid-Atlantic (north of 35°N), SNE, GB, and GOM sub-regions; however, most common in the SNE, GB, and GOM sub-regions (i.e., shelf waters from Hudson Canyon (~ 39°N) and into Georges Bank, Massachusetts Bay, and the Gulf of Maine). • Seasonal shifts in distribution: *January-May:* low densities found from Georges Bank to Jeffreys Ledge (GB and GOM sub-regions). *June-September:* large densities found from Georges Bank, through the GOM (GB and GOM sub-regions). *October-December:* intermediate densities found from southern GB to southern GOM (GB and GOM sub-regions). South of GB (SNE and Mid-Atl sub regions), low densities found year round, with waters off VA and NC representing southern extent of species range during winter months.
Short Beaked Common Dolphin	• Regularly found throughout the continental shelf-edge-slope waters (primarily between the 100-2,000 meter isobaths) of the Mid-Atl, SNE, and GB sub-regions (esp. in Oceanographer, Hydrographer, Block, and Hudson Canyons). Occasionally found in the GOM (GOM sub-region). • Seasonal shift in distribution: *January-May:* occur from Cape Hatteras, NC, to GB (Mid-Atl, SNE, and GB sub-regions). *Mid-summer-autumn:* moves onto GB; Peak abundance found on GB in the autumn (GB sub-region).

Risso's Dolphin	• Common in the continental shelf edge waters of the Mid-Atl, SNE, and GB sub-regions; rare in the GOM sub-region. • Seasonal shift in distribution: *March-November:* distributed along continental shelf edge from Cape Hatteras, NC, to GB (Mid-Atl, SNE, and GB sub-regions). *December-February:* distributed in continental shelf edge of the Mid-Atlantic (SNE and Mid-Atl. sub-regions).
Harbor Porpoise	• Distributed throughout the continental shelf waters (primarily in waters < 150 m) of the Mid-Atlantic (north of 35°N), SNE, GB, and GOM sub-regions. • Seasonal shifts in distribution: *July-September:* concentrated in the northern GOM; low numbers can be found on GB (GOM and GB sub-regions). *October-December:* widely dispersed in waters from NJ to ME (SNE/Mid-Atl, GB, and GOM sub-regions). *January-March:* intermediate densities in waters off NJ to NC (SNE and Mid-Atl sub-regions); low densities found in waters off NY to GOM (SNE, GB, and GOM sub-regions). *April-June:* widely dispersed from NJ to ME (SNE/Mid-Atl, GB, GOM sub-regions).
Bottlenose Dolphin	*Western North Atlantic Offshore Stock* • *Spring-Summer:* primarily distributed along the outer continental shelf/edge-slope of the Mid-Atl, SNE, and GB sub-regions. • *Winter:* distributed in waters south of 35°N. *Western North Atlantic Northern Migratory Stock* • *Summer (July-August):* distributed from the coastal waters from the shoreline to approximately the 25 m isobath between the Chesapeake Bay mouth and Long Island, NY (Mid-Atl and SNE sub-regions). • *Winter (January-March):* distributed in coastal waters south of 35°N. *Western North Atlantic Southern Migratory Stock* • *Spring and Summer (April-August):* distributed along coastal waters from NCa to VA (Mid-Atl and SNE sub- regions). • *Fall and Winter (October-March):* distributed in coastal waters south of 35°N.
Pilot Whales: Short- and Long-Finned	*Short- Finned Pilot Whales* • Primarily occur south of 40°N (Mid-Atl and SNE sub-regions); although low numbers have been found along the southern flank of GB, but no further than 41°N (GB sub-region). • Distributed primarily in the continental shelf edge-slope waters of Mid-Atl and SNE sub-regions from approximately May - December, with individuals moving to more southern waters (i.e., 35°N and south) beginning in the fall. *Long-Finned Pilot Whales* • Range from 35°N to 44°N. • Winter to early spring (approximately November - April): primarily distributed along the continental shelf edge-slope of the Mid-Atl, SNE, and GB sub-regions. • Late spring through fall (approximately May - October): movements and distribution shift onto/within GB, the Great South Channel, and the GOM (GB and GOM sub-regions).
Notes: Information presented in table is representative of small cetacean occurrence in the Northwest Atlantic continental shelf waters out to the 2,000 meter isobath. *Sources:* Jefferson et al. (2009), Payne (1984), Payne and Heinemann (1993), Waring et al. (2014), Waring et al. (2007), and Waring *et al*. (Waring et al. 1992).	

6.4.3.4 Pinnipeds

Status and Trends. Table 18 includes the species of small pinnipeds occurring in the affected area. For additional information on the biology, status, and range wide distribution of each species, refer to Waring et al. (2014).

Table 18 - Species of small pinnipeds occurring in the affected area

Species	Listed Under the ESA	Protected Under the MMPA	Minimum Population Size	Population Trend	MMPA Strategic Stock
Harbor Seal	No	Yes	55,409 (in U.S. waters)	unknown	No
Gray Seal	No	Yes	Unknown for U.S. waters; total Canadian population=331,000	positive	No
Harp Seal	No	Yes	Unknown for U.S. waters; total western North Atlantic stock=7.1 million	positive	No
Hooded Seal	No	Yes	Unknown for U.S. waters; minimum population size for the North Atlantic stock=512,000	unknown	No

Sources: Waring et al (2007), Waring et al. (2014).

Occurrence and Distribution. Pinnipeds are found in the nearshore, coastal waters of the Northwest Atlantic Ocean. In the affected area, they are primarily found throughout the year or seasonally from New Jersey to Maine; however, increasing evidence indicates that some species (e.g., harbor seals) may be extending their range seasonally into waters as far south as Cape Hatteras, North Carolina (35^{o}N) (Waring, et al. 2007; Waring, et al. 2014). As the affected area of the multispecies fishery occurs in waters north of 35^{o}N, and pinnipeds may be present in these waters throughout the year, the multispecies fisheries and pinnipeds are likely to co-occur in the affected area. To further assist in understanding how the multispecies fisheries overlaps in time and space with the occurrence of pinnipeds, Table 19gives an overview of species occurrence and distribution in the affected environment of the multispecies fishery. For additional information on the biology, status, and range wide distribution of each species of pinniped, refer to Waring et al. (2007) and Waring et al. (2014).

Table 19 - Pinniped occurrence in the GOM, GB, SNE, and Mid-Atlantic sub-regions of the multispecies fisheries

Species	Prevalence and Approximate Months of Occurrence (if known)
Harbor Seal	• Primarily distributed in nearshore waters from NJ to ME (SNE/Mid-Atl, GOM sub-regions); however, increasing evidence indicates that their range is extending into waters as far south as Cape Hatteras, NC (35°N) (Mid-Atl sub-region). • Seasonal distribution: *Year Round:* nearshore waters of Maine (GOM sub-regions). *September-May:* nearshore waters from NE to NJ (GOM and SNE/Mid-Atl sub-regions); potential for some animals to extend range into waters as far south as Cape Hatteras, NC (Mid-Atl sub-region).
Gray Seal	• Distributed in nearshore waters from NJ to ME (SNE/Mid-Atl, GOM sub-regions). • Seasonal distribution: *Year Round:* nearshore waters from ME to MA (SNE and GOM sub-regions). *September-May:* nearshore waters from RI to NJ (SNE/Mid-Atl sub-regions).
Harp Seal	• Winter-Spring (approximately January-May): nearshore waters from ME to NJ (GOM and SNE/Mid-Atl sub regions); represents the southern extent of the harp seal's range.
Hooded Seal	• Winter-Spring (approximately January-May): nearshore waters of New England (GOM and SNE sub regions).
Sources: Waring et al. (2007, for hooded seals) and Waring et al. (2014).	

6.4.3.5 Atlantic Sturgeon

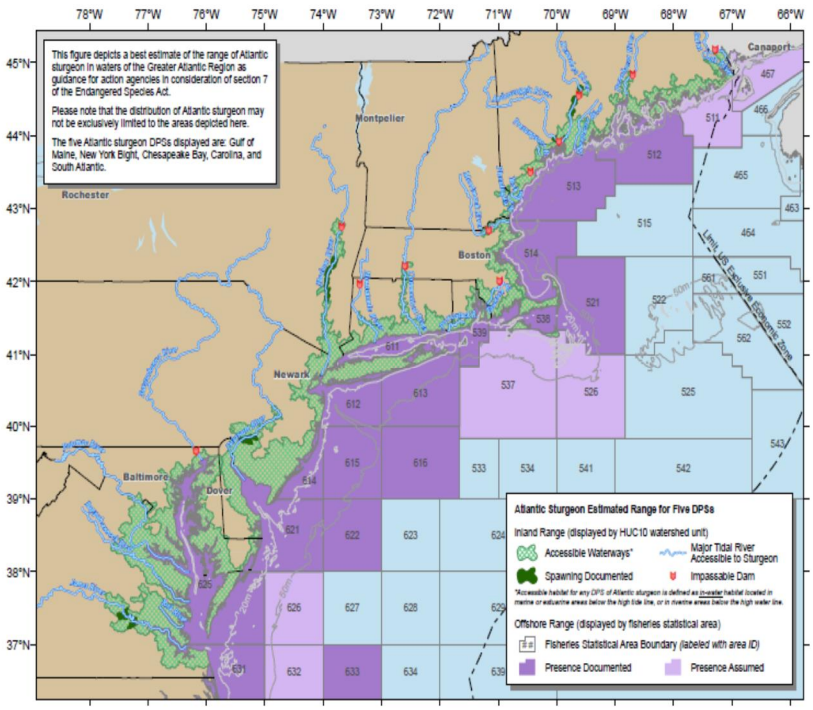
Status. There are 5 DPSs of Atlantic sturgeon listed as threatened or endangered under the ESA (Table 20). For additional information on the biology, status, and range wide distribution of each distinct population segment please refer to 77 FR 5880 and 77 FR 5914 (finalized February 6, 2012), as well as the Atlantic Sturgeon Status Review Team's (ASSRT) 2007 status review of Atlantic sturgeon (ASSRT 2007).

Table 20 - Atlantic sturgeon DPSs listed under the ESA

Species	Listed Under the ESA
Gulf of Maine (GOM) DPS	threatened
New York Bight (NYB) DPS	endangered
Chesapeake Bay (CB) DPS	endangered
Carolina DPS	endangered
South Atlantic (SA) DPS	endangered

Occurrence and Distribution. The marine range of U.S. Atlantic sturgeon extends from Labrador, Canada, to Cape Canaveral, Florida. All five DPSs of Atlantic sturgeon have the potential to be located anywhere in this marine range (Figure 8) (ASSRT 2007; Dadswell 2006; Dadswell et al. 1984; Dovel & Berggren 1983; Dunton et al. 2010; Erickson et al. 2011; Kynard et al. 2000; Laney et al. 2007; O'Leary et al. 2014; Stein et al. 2004b; Waldman et al. 1996; Wirgin et al. 2012) (Laney, et al. 2007).

Figure 8 - Estimated range of Atlantic sturgeon distinct population segments (DPSs)



Based on fishery-independent and dependent data, as well as data collected from tracking and tagging studies, in the marine environment, Atlantic sturgeon appear to primarily occur inshore of the 50 m depth contour (Dunton, et al. 2010; Erickson, et al. 2011; Stein et al. 2004a; Stein, et al. 2004b). However, Atlantic sturgeon are not restricted to these depths, as excursions into deeper continental shelf waters have been documented (Collins & Smith 1997; Stein, et al. 2004a; b; Timoshkin 1968). Data from fishery-independent surveys and tagging and tracking studies also indicate that Atlantic sturgeon undertake seasonal movements along the coast. Tagging and tracking studies found that satellite-tagged adult sturgeon from the Hudson River concentrated in the southern part of the Mid-Atlantic Bight, at depths > 20 m, during winter and spring, while in the summer and fall, Atlantic sturgeon concentrations shifted to the northern portion of the Mid-Atlantic Bight at depths < 20 m (Erickson, et al. 2011).

A similar seasonal trend was found by Dunton et al. (2010); analysis of fishery-independent survey data indicated a coastwide distribution of Atlantic sturgeon during the spring and fall; a southerly (e.g., North Carolina, Virginia) distribution during the winters; and a centrally located (e.g., Long Island to Delaware) distribution during the summer. Although this provides some indication that Atlantic sturgeon are undertaking seasonal movements horizontally and vertically along the U.S. eastern coastline, there is no evidence to date that all Atlantic sturgeon make these seasonal movements. For instance, during inshore surveys conducted by the NEFSC in the

region of the GOM, Atlantic sturgeon have been caught in the fall, winter, and spring between the Saco and Kennebec Rivers (Dunton, et al. 2010).

Within the marine range of Atlantic sturgeon, several marine aggregation areas have been identified adjacent to estuaries and/or coastal features formed by bay mouths and inlets along the U.S. eastern seaboard; depths in these areas are generally no greater than 25 m (Dunton, et al. 2010; Erickson, et al. 2011; Laney, et al. 2007; Stein, et al. 2004a). Although additional studies are still needed to clarify why these particular sites are chosen by Atlantic sturgeon, there is some indication that they may serve as thermal refuge, wintering sites, or marine foraging areas (Dunton, et al. 2010; Erickson, et al. 2011; Stein, et al. 2004a). The following are the currently known marine aggregation sites located within the range of the multispecies fishery:

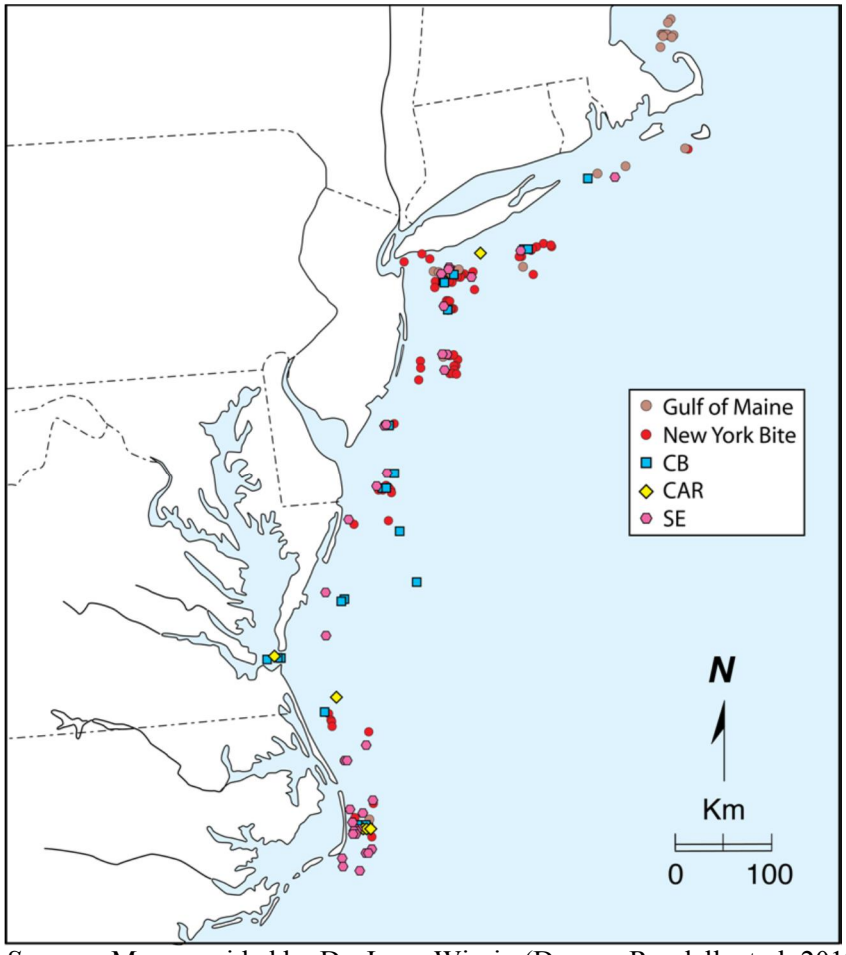
- Waters off North Carolina, including Virginia/North Carolina border (Laney, et al. 2007);
- Waters off the Chesapeake and Delaware Bays (Dunton, et al. 2010; Erickson, et al. 2011; Stein, et al. 2004a);
- New York Bight (e.g., waters off Sandy Hook, NJ, and Rockaway Peninsula, NY; Dunton, et al. 2010; Erickson, et al. 2011; Stein, et al. 2004a);
- Massachusetts Bay (Stein, et al. 2004a);
- Long Island Sound (Bain et al. 2000; Laney, et al. 2007; Savoy & Pacileo 2003; Waldman et al. 2013);
- Connecticut River Estuary (Waldman, et al. 2013); and
- Kennebec River Estuary (termed a "hot spot" for Atlantic sturgeon by Dunton, et al. 2010).

In addition, since listing of the five Atlantic sturgeon DPSs, several genetic studies have occurred to address DPS distribution and composition in marine waters. Genetic analysis has been conducted on Atlantic sturgeon captured (fishery-independent) from aggregations in Long Island Sound and the Connecticut River (summer aggregations; Waldman, et al. 2013), as well as the New York Bight, specifically the coastal waters off the Rockaway Peninsula (spring and fall aggregations; O'Leary, et al. 2014). Results from these studies showed that these aggregations, regardless of location, were comprised of all 5 DPSs, with the NYB DPS consistently identified as the main contributor of the mixed aggregations, followed by the GOM, CB, SA, and Carolina DPSs. In both studies; however, the Carolina DPSs contributed the least to the mix aggregations. In a similar assessment, genetic analysis was conducted on Atlantic sturgeon captured (fishery-dependent) during the Northeast Fisheries Observer Program and At-Sea Monitoring Program, which ranges from Maine to North Carolina.

Results from this assessment showed that in waters of the Mid-Atlantic, all 5 DPSs may co-occur in any area along the Mid-Atlantic coastline (Figure 9), with the percentage of each DPS estimated to be as follows: 51% NYB DPS; 22% SA DPS; 13 % CB DPS; 11% GOM DPS; 2 % Carolina DPS; and 1 % Canadian stock (Damon-Randall et al. 2013). In a study by Wirgin et al. (2010), genetic analysis revealed that the summer assemblage of Atlantic sturgeon in Minas Basin, Inner Bay of Fundy, Canada, was comprised not only of Canadian origin Atlantic sturgeon, but also Atlantic sturgeon from the GOM DPS (34-64% contribution to the mixed assemblage) and NYB DPS (1-2% contribution to the mixed assemblage). Although additional

studies are needed to further clarify the DPS distribution and composition in non-natal estuaries and coastal locations, these studies provide some initial insight on DPS distribution and co-occurrence in particular areas along the U.S. eastern seaboard.

Figure 9 - Capture locations and DPS of origin assignments for observer program specimens (n=173)



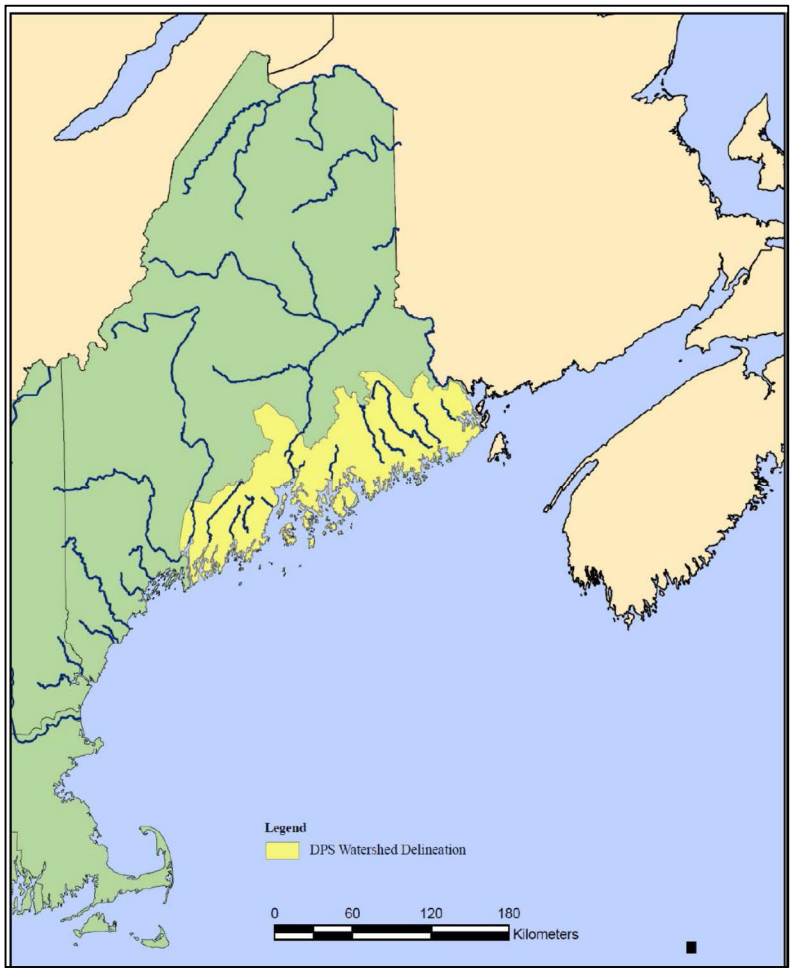
Source: Map provided by Dr. Isaac Wirgin (Damon-Randall, et al. 2013).

Based on the above studies and available information, as the affected area of the multispecies fishery occurs in waters north of 35°N, and Atlantic sturgeon from any of the 5 DPSs may be present in these waters throughout the year, the multispecies fisheries and Atlantic sturgeon of the 5 DPSs are likely to co-occur in the affected area.

6.4.3.6 Atlantic Salmon (Gulf of Maine DPS)

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 (Figure 10), while the marine range of the GOM DPS extends from the Gulf of Maine (primarily northern portion of the GOM), to the coast of Greenland (Fay et al. 2006; NMFS & USFWS 2005).

Figure 10 - Geographic range of the Gulf of Maine DPS of Atlantic salmon



Source: NMFS and USFWS (2005).

In general, smolts, post-smolts, and adult Atlantic salmon may be present in the GOM and coastal waters of Maine in the spring (beginning in April), and adults may be present throughout the summer and fall months (Baum 1997; Fay, et al. 2006; Hyvarinen et al. 2006; Lacroix & Knox 2005; Lacroix & McCurdy 1996; Lacroix et al. 2004; NMFS & USFWS 2005; Reddin 1985; Reddin & Friedland 1993; Reddin & Short 1991; Sheehan et al. 2012; USASAC). For additional information on the on the biology, status, and range wide distribution of the GOM DPS of Atlantic salmon, refer to Fay et al. (2006) and NMFS and USFWS (2005).

Based on the above information, as the multispecies fisheries operates throughout the year, and is known to operate in the GOM, it is possible that the fishery will overlap in time and space with Atlantic salmon migrating northeasterly between U.S. and Canadian waters.

6.5 FISHERY-RELATED BUSINESSES AND COMMUNITIES

This document considers and evaluates the effect management alternatives may have on people's economy, way of life, traditions, and community. These social and economic impacts may be driven by changes in fishery flexibility, opportunity, stability, certainty, safety, and/or other factors. While it is possible that social and economic impacts could be solely experienced by individual participants, it is more likely that impacts would be experienced across communities, gear types, and/or vessel size classes.

This section reviews the Northeast multispecies fishery and describes the human communities potentially impacted by the management alternatives. This includes a description of the sector, common pool, and recreational participants and the important port communities in the fishery. Social, economic and fishery information presented in this section are useful in describing the response of the fishery to past management actions and predicting how the present action may affect the multispecies fishery. Additionally, this section establishes a descriptive baseline for the fishery with which to compare actual and predicted future changes that result from management actions. The focus here is on changes since the adoption of Amendment 16 in FY2010. A more complete discussion of prior management actions is provided in Section 3.1.

Table 21 contains a summary of major trends in the groundfish fishery. Additional information may be found in the FY2010, FY2011, and FY2012 performance reports for this fishery by the NEFSC (Kitts et al. 2011; Murphy et al. 2014; Murphy et al. 2012a).

Table 21 - Summary of major trends in the Northeast multispecies fishery

	FY2009	FY2010			FY2011			FY2012		
	Total	Total	Sector Vessels	Common Pool	Total	Sector Vessels	Common Pool	Total	Sector Vessels	Common Pool
Groundfish Gross Nominal Revenue	$82,510,132	$83,177,330	$81,123,145	$2,054,184	$90,453,455	$89,603,929	$849,526	$69,778,174	$69,135,759	$642,414
Non-groundfish Gross Nominal Revenue	$180,396,477	$210,631,484	$115,682,739	$94,948,745	$240,364,488	$144,718,459	$95,646,029	$235,730,686	$140,108,099	$95,622,587
Total Gross Nominal Revenue	$262,906,608	$293,808,814	$196,805,885	$97,002,930	$330,817,943	$234,322,388	$96,495,555	$305,508,860	$209,243,859	$96,265,001
Groundfish average price	$1.21/lb	$1.43/lb	$1.43/lb	$1.58/lb	$1.47/lb	$1.47/lb	$1.64/lb	$1.51/lb	$1.51/lb	$1.79/lb
Non-groundfish average price	$0.97/lb	$1.21/lb	$1.19/lb	$1.24/lb	$1.14/lb	$1.13/lb	$1.16/lb	$1.11/lb	$1.07/lb	$1.17/lb
Number of active vessels	916	854	435	419	776	442	337	764	446	320
Number of active vessels that took a groundfish trip	566	445	303	142	419	302	117	401	304	97
Number of groundfish trips	25,897	13,474	11,190	2,284	15,958	13,679	2,279	14,496	12,943	1,553
Number of non-groundfish trips	37,173	38,489	16,527	21,962	33,675	16,795	16,880	32,523	17,090	15,433
Number of days absent on groundfish trips	24,605	18,401	16,796	1,605	21,465	19,963	1,502	19,935	18,964	971
Number of days absent on non-groundfish trip	31,606	31,352	16,022	15,330	27,997	15,484	12,513	28,632	16,189	12,442
Total Crew Positions	2,416	2,255			2,161			2,136		
Total Crew-trips	148,153	123,885			122,003			116,334		
Total Crew-days	187,219	169,939			169,417			167,620		

Notes: Data includes all vessels with a valid limited access multispecies permit. Sector plus common pool vessel counts may exceed the total vessel count because vessels may switch between sector and common pool eligibilities during the fishing year. "Trips" refer to commercial trips in the northeast Exclusive Economic Zone (EEZ). Past reports included party/charter trips. From Murphy et al. (2014).

6.5.1 Overview of New England Groundfish Fishery

Groundfish fishing has been integral to New England's industry and culture for over 400 years (Bolster 2008). Broadly described, the Northeast Multispecies fishery includes the landing, processing, and distribution of commercially important fish that live on the sea bottom. In the early years, the fishery focused on cod and haddock. Today, the Northeast Multispecies FMP (large-mesh and small-mesh) includes a total of 13 species of groundfish harvested from three geographic areas representing 19 distinct stocks (Section 6.2).

6.5.2 Fishing Communities

There are over 400 communities that are a homeport or landing port to one or more Northeast groundfish fishing vessels. These ports occur throughout the New England and Mid-Atlantic. Consideration of the economic and social impacts on these communities from proposed fishery regulations is required by the National Environmental Policy Act (NEPA 1970) and the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA 2007). Before any agency of the federal government may take "actions significantly affecting the quality of the human environment," that agency must prepare an Environmental Assessment (EA) that includes the integrated use of the social sciences (NEPA Section 102(2)(C)). National Standard 8 of the MSA stipulates that "conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities" (16 U.S.C. § 1851(a)(8)).

A "fishing community" is defined in the Magnuson-Stevens Act, as amended in 1996, as "a community which is substantially dependent on or substantially engaged in the harvesting or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community" (16 U.S.C. § 1802(17)). Determining which fishing communities are "substantially dependent" on and "substantially engaged" in the groundfish fishery can be difficult.

Although it is useful to narrow the focus to individual communities in the analysis of fishing dependence, there are a number of potential issues with the confidential nature of the information. There are privacy concerns with presenting the data in such a way that proprietary information (landings, revenue, etc.) can be attributed to an individual vessel or a small group of vessels. This is particularly difficult when presenting information on ports that may only have a small number of active vessels.

6.5.2.1 Primary and Secondary Fishing Ports

Communities dependent on the groundfish resource have been categorized into primary and secondary port groups, so that community data can be cross-referenced with other demographic information (Table 22).

Primary ports are those communities that are substantially engaged in the groundfish fishery, and which are likely to be the most impacted by groundfish management measures. Primary ports were selected based on groundfish landings greater than 1,000,000 lbs annually since

FY1994 and/or the presence of significant groundfish infrastructure (e.g., auctions and co-ops). They have demonstrated a continued substantial engagement in the groundfish fishery.

Secondary ports are those communities that may not be substantially dependent or engaged in the groundfish fishery, but have demonstrated some participation in the groundfish fishery since FY1994. Because of the size and diversity of the groundfish fishery, it is not practical to examine each secondary port individually, which is why most secondary ports are grouped with others in the same county or in geographically adjacent counties.

Using the above definitions provides a way to consider the impacts of management measures on every port in which some amount of groundfish has been landed since 1994, and identifies place-based fishing communities based on level of engagement. Because significant geographical shifts in the distribution of groundfish fishing activity have occurred, the characterization of some ports as "primary" or "secondary" may not reflect their historical participation in and dependence on the groundfish fishery. Descriptions of communities involved in the multispecies fishery, and further descriptions of Northeast fishing communities in general, can be found on Northeast Fisheries Science Center's website (NEFSC 2013e).

Table 22 - Primary and secondary multispecies port communities

Region	Multispecies Port Community	
	Primary	Secondary
Downeast ME	-	Jonesport, West Jonesport, Beals Island, Milbridge, Machias, Eastport, Dyers Bay
Upper Mid-Coast ME 1	-	Winter Harbor, Southwest Harbor, Bar Harbor, Northeast Harbor, Northwest Harbor
Upper Mid-Coast ME 2	-	Stonington, Sunshine/Deer Isle
Upper Mid-Coast ME 3	-	Rockland, St. George (Port Clyde), South Thomaston (Sprucehead), Owls Head, Friendship, Camden, Vinalhaven
Lower Mid-Coast ME 1	-	Bristol, South Bristol, Boothbay Harbor, East Boothbay (Boothbay), Breman (Medomak), Southport, Westport Island
Lower Mid-Coast ME 2	-	Sebasco Estates, Small Point, West Point, Five Islands, Phippsburg
Lower Mid-Coast ME 3	Portland	Cundys Harbor, Orrs Island, Yarmouth, Harpswell, East Harpswell, South Harpswell, Bailey Island, Cape Elizabeth
Southern Maine	-	York, York Harbor, Camp Ellis, Kennebunkport, Kittery, Cape Porpoise, Ogunquit, Saco, Wells
New Hampshire	Portsmouth	Rye, Hampton, Seabrook
North Shore MA	Gloucester	Rockport, Newburyport, Beverly, Salem, Marblehead, Manchester, Swampscott
South Shore MA	Boston	Scituate, Plymouth, Marshfield (Green Harbor)
Cape Cod MA	Chatham/ Harwichport	Provincetown, Sandwich, Barnstable, Wellfleet, Woods Hole, Yarmouth, Orleans, Eastham
Islands MA	-	Nantucket, Oak Bluffs, Tisbury, Edgartown
South Coast MA	New Bedford/ Fairhaven	Dartmouth, Westport
Western RI	Point Judith	Charlestown, Westerly, South Kingstown (Wakefield), North Kingstown (Wickford)
Eastern RI	-	Newport, Tiverton, Portsmouth, Jamestown, Middletown, Little Compton
Connecticut	-	Stonington, New London, Noank, Lyme, Old Lyme, East Lyme, Groton, Waterford
Long Island NY	Montauk/ Hampton Bays/ Shinnecock/ Greenport	Mattituck, Islip, Freeport, Brooklyn, Other Nassau and Suffolk Counties
Northern NJ	-	Point Pleasant, Belford, Long Beach/Barnegat Light, Barnegat, Highlands, Belmar, Sea Bright, Manasquan
Southern NJ	-	Cape May, Wildwood, Burleigh, Sea Isle City, Ocean City, Stone Harbor, Avalon

6.5.2.2 Primary Port Descriptions

Information in this section is largely based on demographic data collected by the 2010 US Census and fishery data collected by NMFS, much of which is available on the NEFSC website (NEFSC 2012c). While these data describe a community's dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels therein are even more dependent on groundfish.

Portland, Maine: In 2010, Portland had a population 66,194, which is a 3.0% increase from the year 2000 (64,249) (Census 2013). In FY2012, 16 vessels that hail from Portland landed groundfish, down from 20 in FY2007 (Table 23). The value of groundfish landings from these vessels was $8.8M in FY2012, whether they landed in Portland or elsewhere. The value of all groundfish revenue in Portland was $5.7M in FY2012, indicating that several of the vessels based in Portland landed in other ports, likely in Massachusetts. Since FY2009, the value of landings in Portland has been less than the value of landings by Portland-based vessels. In 2012, about 20% of total fisheries revenues of species landed Portland came from groundfish. Portland has several dealers, processors, and other shore-side infrastructure that support the groundfish fishery. Opening in 1986, the Portland Fish Exchange is America's first all-display seafood auction. In 2013, the Exchange sold 4.7M pounds of seafood, about 75% of which was groundfish (www.pfex.org). Processors include Bristol Seafood, Channel Fish Processing, Cozy Harbor Seafood, Inc., and North Atlantic, Inc. The Salt and Sea is a community supported fishery is based in Portland.

Portsmouth, New Hampshire: In 2010, Portsmouth had a population 21,233, which is a 2.2% increase from the year 2000 (20,784) (Bureau 2013). In FY2012, 25 vessels that hail from New Hampshire landed groundfish, down from 44 in FY2007 (Table 24). The value of groundfish landings from these vessels was $3.4M in FY2012, whether they landed in New Hampshire or elsewhere. The value of all groundfish revenue in New Hampshire was $3.3M in FY2012, indicating that some vessels based in New Hampshire landed in other ports, likely in Massachusetts or Maine. Since at least FY2007, the value of landings in New Hampshire has been less than the value of landings by New Hampshire-based vessels. In 2012, about 17% of total fisheries revenues of species landed New Hampshire came from groundfish.

In terms of shore-side infrastructure, the Portsmouth Fishermen's Cooperative closed in September 2007. Since then, several Portsmouth fishermen have been landing fish in other ports, though some offloading of groundfish has continued at the State Pier through dealers such as Seaport Fish and though private trucking to dealers out of state. Recently, a local commercial fisherman obtained a dealer's license to help sustain Portsmouth as a landing port. New Hampshire Community Seafood is a community supported fishery based in Portsmouth which was launched in 2012.

Gloucester, Massachusetts: In 2010, Gloucester had a population 28,789, which is a 4.9% decrease from the year 2000 (30,273) (Bureau 2013). In FY2012, 61 vessels that hail from Gloucester landed groundfish, down from 95 in FY2007 (Table 25). The value of groundfish landings from these vessels was $14M in FY2012, whether they landed in Gloucester or elsewhere. The value of all groundfish revenue in Gloucester was $21M in FY2012, indicating that vessels based in other ports landed in Gloucester. Since at least FY2007, the value of landings in Gloucester has been greater than the value of landings by Gloucester-based vessels. In 2012, about 37% of total fisheries revenues of species landed Gloucester came from groundfish.

The significant amount of landings and revenues, as well as the importance of the Cape Ann Seafood Exchange and other shoreside facilities, indicate that Gloucester is an important port of landing for multispecies vessels. Processors include Channel Fish Processing. Cape Ann Fresh Catch is a community supported fishery is based in Gloucester. Gloucester has gained some business from Maine vessels which land here due to tightening restrictions at the statewide level in Maine.

Boston, Massachusetts: In 2010, Boston had a population 617,594, which is a 4.8% increase from the year 2000 (589,141) (Bureau 2013). In FY2012, 28 vessels that hail from Boston landed groundfish, down from 54 in FY2007 (Table 26). The value of groundfish landings from these vessels was $13M in FY2012, whether they landed in Boston or elsewhere. The value of all groundfish revenue in Boston was $12M in FY2012, indicating that some vessels based in Boston landed in other ports. Since at least FY2007, the value of landings in Boston has been less than the value of landings by Boston-based vessels. In 2012, about 63% of total fisheries revenues of species landed Boston came from groundfish.

These landings as well as the historical importance of Boston as a provider of fishing-related support services for smaller communities indicate that Boston is an important primary community. The high cost of real estate in Boston means that fishermen and other maritime users of waterfront areas are face displacement issues. Groups such as the Boston Harbor Association are working to prevent this from happening. There are now only two areas for commercial fishermen to tie-up and unload their catch – Boston Fish Pier and the Cardinal Medeiros docks (used almost exclusively by lobstermen). The New England Seafood is located at the Fish Pier. Groundfish processing facilities in Boston include Channel Fish Processing, Foley Fish, and Pier Fish, Co.

Chatham, Massachusetts: In 2010, Chatham and Harwichport had a combined population of 3,065, which is an 11% decrease from the year 2000 (3,476) (Bureau 2013). In FY2012, 23 vessels that hail from Chatham landed groundfish, unchanged from FY2007 (Table 27). The value of groundfish landings from these vessels was $0.94M in FY2012, whether they landed in Chatham or elsewhere. In FY2010 and FY2011, the value of landings in Chatham was been less than the value of landings by Chatham-based vessels. In 2012, about 6% of total fisheries revenues of species landed Chatham came from groundfish.

The Chatham Fish Pier is an active offloading facility in Chatham. The Cape Cod Community Supported Fishery is based in West Chatham. Also on the Cape, the Lobster Trap Co., Inc. purchases groundfish from Chatham-based vessels.

New Bedford, Massachusetts: In 2010, New Bedford and Fairhaven had a combined population of 110,945, which is a 0.93% decrease from the year 2000 (109,927) (Bureau 2013). In FY2012, 36 vessels that hail from New Bedford landed groundfish, down from 60 in FY2007 (Table 28). The value of groundfish landings from these vessels was $16M in FY2012, whether they landed in New Bedford or elsewhere. Since at least FY2007, the value of landings in New Bedford has been greater than the value of landings by New Bedford-based vessels. In 2012, about 5% of total fisheries revenues of species landed New Bedford came from groundfish.

New Bedford is also an important port of landing for scallop vessels, and its dependence on the scallop fishery for revenues reduces its overall dependence on the multispecies fishery, although many individual vessels may be more dependent on groundfish. New Bedford, as a fishing community, is less dependent on groundfish for its overall fisheries revenues. Some impacted

vessels may have the ability to offset losses in groundfish revenues with revenues from other fisheries.

New Bedford has several dealers, processors, and other shore-side infrastructure that support the groundfish fishery. Opening in 1994, the Whaling City Seafood Display Auction is the only seafood auction in Southern New England. Groundfish processors include American Pride Seafoods, Foley Fish, Marder Trawling, Inc., and Pier Fish, Co.

Point Judith/Narragansett, Rhode Island: Point Judith is considered a village in the town of Narragansett and does not have Census data as it is not incorporated on its own. It is also not a residential town, and fishermen working out of the port live in surrounding communities and all across Rhode Island. In 2010, Narragansett had a population of 15,868, which is a 3.3% decrease from the year 2000 (16,361) (Bureau 2013). In FY2012, 33 vessels that hail from Point Judith landed groundfish, down from 43 in FY2007 (Table 29). The value of groundfish landings from these vessels was $1.9M in FY2012, whether they landed in Point Judith or elsewhere. Since at least FY2007, the value of landings in Point Judith has been less than the value of landings by Point Judith-based vessels, indicating that these vessels land in other ports as well. In 2012, about 4% of total fisheries revenues of species landed Point Judith came from groundfish.

Groundfish landings and revenues in this community have increased considerably since the 1994 fishing year, suggesting that Point Judith is becoming a more important port of landing for multispecies vessels. Point Judith, as a fishing community, is less dependent on groundfish for its overall fisheries revenues. Some impacted vessels may have the ability to offset losses in groundfish revenues with revenues from other fisheries. Many of Point Judith's vessels are actively involved in fisheries in the Mid-Atlantic region (squid, fluke, etc.). However, increasing reliance on groundfish in recent years suggests that vessels may have more difficulty shifting effort as restrictions in these other fisheries increase and opportunities decrease.

Groundfish processors located in Warwick likely serve fishermen offloading in Point Judith, including Gardner's Wharf Seafood and Great Northern Products, Ltd.

Table 23 - Groundfish fishery in Portland, ME

	FY07	FY08	FY09	FY10	FY11	FY12
Active groundfish vessels in this homeport(#) [A]	20	16	15	15	15	16
Nominal groundfish revenue from the homeport vessels ($)	$6.7M	$6.8M	$8.3M	$10M	$10M	$8.8M
Nominal value of gf landings in this landing port ($) [B]	$8.9M	$10M	$4.5M	$3.4M	$4.9M	$5.7M

[A] "Active" defined as revenue from at least one groundfish trip from this homeport.
[B] Revenue includes all vessels landing in Portland.
Sources: FY07-FY08 from Kitts et al. (2011). FY09-FY12 from Murphy et al. (2014).

Table 24 - Groundfish fishery in New Hampshire

	FY07	FY08	FY09	FY10	FY11	FY12
Active groundfish vessels in this homeport(#) [A]	44	42	40	32	29	25
Nominal groundfish revenue from the homeport vessels ($)	$4.9M	$7.2M	$5.1M	$3.7M	$4.6M	$3.4M
Nominal value of gf landings in this landing port ($) [B]	$3.4M	$4.1M	$4.2M	$3.3M	$4.3M	$3.3M

[A] "Active" defined as revenue from at least one groundfish trip from this homeport.
[B] Revenue includes all vessels landing in New Hampshire.
Sources: FY07-FY08 from Kitts et al. (2011). FY09-FY11 from Murphy et al. (2014).

Table 25 - Groundfish fishery in Gloucester, MA

	FY07	FY08	FY09	FY10	FY11	FY12
Active groundfish vessels in this homeport(#) [A]	95	88	97	74	70	61
Nominal groundfish revenue from the homeport vessels ($)	$14M	$15M	$17M	$17M	$17M	$14M
Nominal value of gf landings in this landing port ($) [B]	$24M	$27M	$30M	$28M	$30M	$21M

[A] "Active" defined as revenue from at least one groundfish trip from this homeport.
[B] Revenue includes all vessels landing in Gloucester.
Sources: FY07-FY08 from Kitts et al. (2011). FY09-FY11 from Murphy et al. (2014).

Table 26 - Groundfish fishery in Boston, MA

	FY07	FY08	FY09	FY10	FY11	FY12
Active groundfish vessels in this homeport(#) [A]	54	49	46	35	34	28
Nominal groundfish revenue from the homeport vessels ($)	$16M	$15M	$14M	$14M	$18M	$13M
Nominal value of gf landings in this landing port ($) [B]	$8.3M	$8.9M	$8.5M	$12M	$12M	$12M

[A] "Active" defined as revenue from at least one groundfish trip from this homeport.
[B] Revenue includes all vessels landing in Boston.
Sources: FY07-FY08 from Kitts et al. (2011). FY09-FY11 from Murphy et al. (2014).

Table 27 - Groundfish fishery in Chatham, MA

	FY07	FY08	FY09	FY10	FY11	FY12
Active groundfish vessels in this homeport(#) [A]	26	27	28	26	26	23
Nominal groundfish revenue from the homeport vessels ($)	$2.9M	$2.9M	$2.7M	$2.4M	$2.6M	$0.94M
Nominal value of gf landings in this landing port ($) [B]	$3.4M	$3.6M	$3.1M	$2.2M	$2.4M	$1.0M

[A] "Active" defined as revenue from at least one groundfish trip from this homeport.
[B] Revenue includes all vessels landing in Chatham.
Sources: FY07-FY08 from Kitts et al. (2011). FY09-FY11 from Murphy et al. (2014).

Table 28 - Groundfish fishery in New Bedford, MA

	FY07	FY08	FY09	FY10	FY11	FY12
Active groundfish vessels in this homeport(#) [A]	60	62	51	33	37	36
Nominal groundfish revenue from the homeport vessels ($)	$16M	$18M	$16M	$18M	$21M	$16M
Nominal value of gf landings in this landing port ($) [B]	$27M	$26M	$24M	$29M	$30M	$22M

[A] "Active" defined as revenue from at least one groundfish trip from this homeport.
[B] Revenue includes all vessels landing in New Bedford.
Sources: FY07-FY08 from Kitts et al. (2011). FY09-FY11 from Murphy et al. (2014).

Table 29 - Groundfish fishery in Point Judith, RI

	FY07	FY08	FY09	FY10	FY11	FY12
Active groundfish vessels in this homeport(#) [A]	43	36	33	31	28	33
Nominal groundfish revenue from the homeport vessels ($)	$4.7M	$3.3M	$2.2M	$2.4M	$2.0M	$1.9M
Nominal value of gf landings in this landing port ($) [B]	$4.6M	$2.6M	$1.8M	$1.5M	$1.9M	$1.8M

[A] "Active" defined as revenue from at least one groundfish trip from this homeport.
[B] Revenue includes all vessels landing in Point Judith.
Sources: FY07-FY08 from Kitts et al. (2011). FY09-FY11 from Murphy et al. (2014).

6.5.2.3 Employment

Along with the restrictions associated with presenting confidential information, there is also limited quantitative socio-economic data upon which to evaluate the community-specific importance of the multispecies fishery. In addition to the direct employment of captains and crew, the industry is known to support ancillary businesses such as gear, tackle, and bait suppliers; fish processing and transportation; marine construction and repair; and restaurants. Regional economic models do exist that describe some of these inter-connections at that level (Clay et al. 2007; NMFS 2010d; Olson & Clay 2001; Thunberg 2007).

Throughout the Northeast, many communities benefit indirectly from the multispecies fishery, but these benefits are often difficult to attribute. The direct benefit from employment in the fishery can be estimated by the number of crew positions.[43] However, crew positions do not equate to the number of jobs in the fishery and do not make the distinction between full and part-time positions. In FY2012, vessels with limited access groundfish permits provided 2,146 crew positions, with 49% coming from vessels with homeports in Massachusetts (Table 30). Since at least FY2009, the total number of crew positions provided by limited access groundfish vessels has declined by. Changes in crew positions vary across homeport states, with Maine adding a few positions in FY2012.

A crew day[44] is a measure of employment that incorporates information about the time spent at sea earning a share of the revenue. Conversely, crew days can be viewed as an indicator of time invested in the pursuit of "crew share" (the share of trip revenues received at the end of a trip). The time spent at sea has an opportunity cost. For example, if crew earnings remain constant, a decline in crew days would reveal a benefit to crew in that less time was forgone for the same amount of earnings. In FY2012, vessels with limited access groundfish permits used 167,620 crew days, with 48% coming from vessels with homeports in Massachusetts (Table 30). Since at least FY2009, the total number of crew days used by limited access groundfish vessels across the Northeast has declined, though some states had an increase in crew days in FY2012.

The number of crew positions and crew days give some indication of the direct benefit to communities from the multispecies fishery through employment. But these measures, by themselves, do not show the benefit or lack thereof at the individual level. Many groundfish captains and crew are second- or third-generation fishermen who hope to pass the tradition on to their children. This occupational transfer is an important component of community continuity as fishing represents an important occupation in many of the smaller port areas.

[43] Crew positions are measured by summing the average crew size of all active vessels on all trips.

[44] Similar to a "man-hour," a "crew day" is calculated by multiplying a vessel's crew size by the days absent from port. Since the number of trips affects the crew-days indicator, the indicator is also a measure of work opportunity.

Table 30 - Number of crew positions and crew days on active vessels by homeport and state

Home Port State		FY2009	FY2010	FY2011	FY2012
CT	Total crew positions	40	36	42	39
	Total crew days	3,700	3,996	3,001	4,312
MA	Total crew positions	1,231	1,132	1,067	1,053
	Total crew days	95,685	82,066	84,119	81,430
ME	Total crew positions	266	247	221	242
	Total crew days	15,539	15,541	14,783	16,252
NH	Total crew positions	110	107	105	96
	Total crew days	5,407	3,909	4,974	5,085
NJ	Total crew positions	162	149	145	148
	Total crew days	10,865	10,086	9,898	10,292
NY	Total crew positions	219	209	217	209
	Total crew days	16,997	15,772	16,031	14,908
RI	Total crew positions	267	253	248	232
	Total crew days	26,411	26,786	25,130	24,017
Other Northeast	Total crew positions	129	130	128	128
	Total crew days	12,615	11,784	11,480	11,322
Total	**Total crew positions**	**2,424**	**2,262**	**2,173**	**2,146**
	Total crew days	**187,219**	**169,939**	**169,417**	**167,620**

6.5.3 Commercial Permit Categories

Since the implementation of Amendment 5 in 1994, all vessels that land regulated groundfish for commercial sale have been required to have a permit. Moratorium - commonly called limited access - permits were granted to vessels based on fishing history during a defined period. Limited access permit holders land most regulated groundfish. The only new limited access permits granted since 1994 have been to a small number of handgear vessels in FY 2004, but the ownership of many vessels issued permits has changed. Most limited access permits are restricted in the number of DAS that can be fished. In addition, there have been open access permit categories. Open access permits can be requested at any time, with the limitation that a vessel cannot have a limited access and open access permit at the same time. Permits are issued in different categories, depending on the activity and history of the vessel. There have been several changes in the defined permit categories, as Amendment 5, Amendment 7, and Amendment 13 all changed the category definitions. For this reason, when examining fishing activity based on permit category, care must be taken to make comparisons to similar permits. Many groundfish vessels have permits for, and participate in, other fisheries. For some vessels groundfish revenues are only a small part of total fishing revenues.

Adopted in 1996, Amendment 7 implemented several different limited and open access permit categories in the multispecies fishery that were in effect in through FY 2003. Limited access multispecies permit categories are described in CFR 648.82, while open access multispecies permit categories are described in CFR 648.88.

6.5.3.1 Limited Access Permit Categories

(A) *Individual DAS:* Individual DAS vessels are subject to DAS restrictions. Any vessel issued a valid Individual DAS permit as of July 1, 1996 (except those that were issued a gillnet permit) was assigned to the Individual DAS category in Amendment 7.

(B) *Fleet DAS:* Fleet DAS vessels are subject to DAS restrictions. Any vessel issued one of the following permits as of July 1, 1996 was assigned to the Fleet DAS category in Amendment 7: Fleet DAS permit, Gillnet permit, limited access Hook-Gear permit, "Less than or equal to 45 ft (13.7 m)" permit to a vessel larger than 20 ft (6.1 m) in length as determined by its most recent permit application.

(C) *Small Vessel Exemption:* Small vessel category vessels may retain up to 300 lb (136.1 kg) of cod, haddock, and yellowtail flounder, combined, and one Atlantic halibut per trip without being subject to DAS restrictions. These vessels are not subject to possession limits for other NE multispecies. Any vessel that has a valid limited access multispecies permit, was fishing with a small vessel category permit (less than or equal to 45 ft (13.7 m)) as of July 1, 1996, and is 20 ft (6.1 m) or less in length as determined by the vessel's last application for a permit, was assigned to the small vessel category in Amendment 7.

(D) *Hook Gear:* Hook gear vessels are subject to DAS restrictions. Each hook-gear vessel is limited to 4,500 rigged hooks and is prohibited from possessing gear other than hook gear on board.

(E) *Combination Vessel:* Combination vessels are scallop dredge vessels that qualified for a multispecies permit because of groundfish landings using trawls. These vessels are subject to DAS restrictions. A vessel issued a valid limited access multispecies permit and qualified to fish as a combination vessel as of July 1, 1996 was assigned to the Combination vessel category in Amendment 7.

(F) *Large Mesh Individual DAS:* Large mesh individual DAS vessels are subject to DAS restrictions. Large Mesh Individual vessels are required to fish for the entire year with either trawl gear with a minimum size of 8.5-inch (21.59 cm) diamond or square mesh.

(G) *Large Mesh Fleet DAS:* Large mesh fleet DAS vessels are subject to DAS restrictions. Large Mesh Fleet vessels were required to fish with trawl gear with a minimum size of 8.5-inch (21.59-cm) diamond or square mesh.

(HA) *Handgear A:* A vessel with a valid open access multispecies handgear permit is allowed to possess and land up to 300 lb (136.1 kg) of cod, one Atlantic halibut per trip, and the daily possession limit for other regulated NE multispecies, provided that the vessel did not use or possess on board gear other than rod and reel or handlines while in possession of, fishing for, or landing NE multispecies, and provided it has at least one standard tote on board. A handgear permit vessel may not fish for, possess, or land regulated species from March 1 through March 20 of each year.

6.5.3.2 Open Access Permit Categories

(HB) *Handgear B:* The vessel may possess and land up to 75 lb of cod and up to the landing and possession limit restrictions for other NE multispecies. The vessel may not use or possess on board gear other than handgear while in possession of, fishing for, or landing NE multispecies, and must have at least one standard tote on board; The vessel may not fish for, possess, or land

regulated species from March 1 through March 20 of each year; and the vessel, if fishing with tub-trawl gear, may not fish with more than a maximum of 250 hooks.

(I) *Charter/Party:* Any charter/party permit category vessel is subject to restrictions on gear, recreational minimum fish sizes, possession limits, and specified prohibitions on sale.

(J) *Scallop Multispecies Possession Limit:* A vessel that has been issued a valid open access scallop multispecies possession limit permit may possess and land up to 300 lb (136.1 kg) of regulated species when fishing under a scallop DAS, provided the vessel does not fish for, possess, or land haddock from January 1 through June 30 and provided the vessel has at least one standard tote on board.

(K) *Non-Regulated Multispecies:* A vessel issued a valid open access, non-regulated multispecies permit may possess and land one Atlantic halibut and an unlimited quantity of the other non-regulated multispecies. The vessel is subject to restrictions on gear, area, and time and other restrictions.

6.5.4 Commercial Fishery Holdings

6.5.4.1 Data Caveats

Since June 2013, the PDT has worked with the Analysis and Program Support Division (APSD) at the NMFS Greater Atlantic Fisheries Office (GARFO) to improve queries of holdings data at the individual human person level. The DRAFT data in this document is the PDT's current best estimate of PSC holdings by an individual human person or permit bank for each stock in the fishery. The issue is complex and competes for human resources with a number of concurrent issues of varying priority for both NMFS and Council. There continues to be forward progress on improving the data provided. Much effort has been spent to troubleshoot queries and provide the Council with robust data. Absolute determinations of PSC holdings are ultimately the responsibility of the APSD at the GARFO. Just as limited entry programs estimate potential permit qualifications, until those records are scrutinized after final action, often including a multiphase appeals process, there are changes in the data. The PDT is confident that the data herein portray the holdings in the fishery to within 1-2 percentage points of the true values.

Because the alternatives considered in this action would apply an accumulation limit to individual human persons or permit banks (Section 4.1), the fishery holdings data in this section is presented at that level. In this data, each permit bank (state and nonprofit) is considered a person. NMFS does not have data on percent interest in fishery permits of the individuals associated with them. Here, it is assumed that each individual has 100% interest in a given MRI.

State-operated permit banks were defined in Amendment 17. There is no regulatory definition of a private/nonprofit permit bank. The permit banks characterized in this section include: the Maine State Permit Bank, New Hampshire State Permit Bank, Boston Sustainable Fishing Community Preservation Fund, Cape Cod Fisheries Trust, Gloucester Fishing Community Preservation Fund, NEFS XI Permit Bank, Penobscot East Permit Bank, South Shore Fishing Community Preservation Fund, and The Nature Conservancy/Island Institute Community Permit Bank. The alternatives (Section 4.1) could apply to other permit banks that form in the future.

6.5.4.2 Permit/MRI Holdings

A Moratorium Right Identifier (MRI) is a unique identifying number that is attached to a Northeast multispecies permit. Each permit has its own MRI, and a given MRI is attached to only one permit. Potential Sector Contribution (PSC) is allocated to MRIs. Within the current NMFS data systems, holdings of MRIs would be simpler to track. A plain language description of MRIs and PSC calculation has been published by GARFO (NMFS 2010c).

There have been ~1,400 MRIs in the fishery since FY2010 (Table 31). In FY2013, the highest number of MRIs held by an individual human person or permit bank is 49, which equates to ~4% of the MRIs in the fishery. This entity is a private/nonprofit permit bank. The Council is considering whether to treat permit banks differently in terms of accumulation limits (Section 5.3.1). Permit banks collectively hold 104 MRIs, which represent about 7% of the holdings of the entire groundfish fishery (Table 32).

Table 31 - Number of Northeast multispecies permits/MRIs

	April 7, 2011	FY2011	FY2012	FY2013
Limited Access Permits/MRIs on Vessels	1,257	*1,320	*1,222	*1,129
Total Limited Access Permits/MRIs	1,422	**1,421	**1,407	**1,380
Limited Access Permits/MRIs with PSC	1,262	**1,210	**1,255	**1,247

Notes:
* at any time during the fishing year.
** on May 1 of fishing year.
Source: NMFS Northeast Regional Office. Report date 8/6/2013.

Table 32 - Multispecies MRIs held by permit banks, as of January 28, 2014

		# of GF MRIs held *	% of fishery **
State-operated:	New Hampshire State Permit Bank	4	0.3%
	State of Maine Permit Bank	11	0.8%
	Total state	**15**	**1%**
Private/ Nonprofit:	Boston Sustainable Fishing Community Preservation Fund, Inc.	2	0.1%
	Cape Cod Fisheries Trust	23	2%
	Gloucester Fishing Community Preservation Fund	49	4%
	NEFS XI Permit Bank	2	0.1%
	Penobscot East Permit Bank	2	0.1%
	South Shore Fishing Community Preservation Fund	8	0.6%
	The Nature Conservancy/Island Institute Community Permit Bank	3	0.2%
	Total private/nonprofit	**89**	**6%**
Grand Total:		**104**	**~7%**

Notes:
* The MRI data was downloaded on January 28, 2014, from the NMFS Sector Information Portal.
** Assumes ~1,400 MRIs in the fishery.

6.5.4.3 PSC Holdings

6.5.4.3.1 Fishery-wide PSC holdings

Table 33 and Table 34 summarize the PSC shares of all groundfish stocks held by individual human persons and permit banks at the beginning of FY2010, the control date for this action (April 7, 2011), and the beginning of FY2013. The data in Table 33 were calculated by averaging the PSC held by an individual human person or permit bank across all stocks and then identifying the individuals with the maximum, mean, and median fishery-wide holdings. For example, if an individual holds a PSC of 3.000 of stock A and 1.000 of stock B, the average holdings would be 2.000. For FY2010, the individual with the highest average PSC held 7.316, while the mean individual held 0.128, and median held 0.010. The data in Table 34 were calculated by summing the PSC held by an individual human person or permit bank across all stocks and then identifying the individuals with the maximum, mean, and median fishery-wide holdings. For FY2010, the individual with the highest total PSC held 102.423, while the mean individual held 1.797, and median held 0.146. Note that SNE/MA winter flounder was not allocated until FY2012. Data for FY2013 with and without this stock are shown. Either way, the PSC holdings increased during this time series (average and total) for the individual (person or permit bank) holding the highest average PSC.

Table 33 – Average PSC shares of individual human persons and permit banks

	Average PSC holdings			
	FY2010*	**April 7, 2011***	**FY2013***	**FY2013****
Maximum	7.316	7.316	8.894	9.358
Mean	0.128	0.129	0.144	0.146
Median	0.010	0.011	0.015	0.018

Notes: This data averages the PSC of all stocks for each individual human person and permit bank (n ≈ 1,460 in FY2010 and the control date and ~1,500 for FY2013). PSC holdings data is accurate to nine decimal places.
* Does not include SNE/MA winter flounder.
** Includes SNE/MA winter flounder.

Table 34 – Total PSC shares of individual human persons and permit banks

	Total PSC holdings			
	FY2010*	**April 7, 2011***	**FY2013***	**FY2013****
Maximum	102.423	102.423	124.514	140.366
Mean	1.797	1.806	2.031	2.189
Median	0.146	0.147	0.263	0.264

Notes: This data sums the PSC of all stocks for each individual human person and permit bank (n ≈ 1,460 in FY2010 and the control date and ~1,500 for FY2013). PSC holdings data is accurate to nine decimal places.
* Does not include SNE/MA winter flounder.
** Includes SNE/MA winter flounder.

6.5.4.3.2 Stock-specific PSC holdings

Table 35 to Table 42 summarize the PSC shares of all groundfish stocks held by individual human persons and permit banks at the beginning of FY2010, the control date for this action (April 7, 2011), and the beginning of FY2013. The tables also detail the maximum held by a permit bank and by an individual human person, and the number of individual human persons and permit banks with PSC>0 for a stock. SNE/MA winter flounder was not allocated until FY2012, so Table 35 and Table 36 do not include that stock.

The most concentrated stocks are GB winter flounder, GB yellowtail flounder, and SNE/MA winter flounder, while SNE/MA yellowtail flounder and pollock are the least concentrated stocks. The PSC holdings increased during this time series for the individual (person or permit bank) holding the highest average PSC. For some stocks, an individual human person has the highest holdings (e.g., GB cod), and in other cases, a permit bank does (e.g., GOM cod). In FY2013, Pollock and GB cod are the stocks with some amount of PSC held by the largest number of individual human persons or permit banks (~1,080), and redfish PSC is held by the least (754).

Table 35 - Stock-specific PSC holdings by individual human persons and permit banks, as of FY2010

Stock	All human persons and permit banks			Permit banks	Human persons
	Max	Mean	Median	Max	Max
GB cod	9.944	0.135	0.001	4.195	9.944
GOM cod	7.451	0.102	0.001	7.451	2.518
GB haddock	14.594	0.150	0.000	5.389	14.594
GOM haddock	7.153	0.112	0.000	5.773	7.153
GB yellowtail flounder	14.030	0.160	*0.000	2.159	14.030
SNE/MA yellowtail	5.028	0.124	0.000	2.678	5.028
CC/GOM yellowtail	7.967	0.121	0.000	6.189	7.967
Plaice	8.989	0.129	0.000	8.989	6.295
Witch flounder	8.502	0.129	0.001	8.502	6.568
GB winter flounder	22.681	0.159	0.000	0.707	22.681
GOM winter flounder	6.576	0.114	0.000	6.576	5.423
Redfish	9.650	0.133	*0.000	6.302	9.650
White hake	7.662	0.120	0.000	7.662	6.506
Pollock	5.895	0.116	0.000	5.490	5.895
SNE/MA winter flounder	n/a	n/a	n/a	n/a	n/a

Notes:
The data do not include SNE/MA winter flounder, because it was not allocated until FY2012. There are about 1,460 individual human persons and permit banks in the data. PSC holdings data is accurate to nine decimal places.
* Value is equal to zero exactly. Other zero values represent a small fraction beyond four decimal places.

Table 36 - Stock-specific PSC holdings by individual human persons and permit banks, as of April 7, 2011

Stock	All human persons and permit banks			Permit banks	Human persons
	Max	Mean	Median	Max	Max
GB cod	9.944	0.135	0.001	4.195	9.944
GOM cod	7.451	0.102	0.001	7.451	2.518
GB haddock	14.594	0.151	0.000	5.389	14.594
GOM haddock	7.153	0.113	0.000	5.773	7.153
GB yellowtail flounder	14.030	0.160	*0.000	2.159	14.030
SNE/MA yellowtail	5.028	0.124	0.000	2.678	5.028
CC/GOM yellowtail	7.967	0.122	0.000	6.187	7.967
Plaice	8.989	0.130	0.000	8.989	6.295
Witch flounder	8.502	0.130	0.001	8.502	6.568
GB winter flounder	22.681	0.160	0.000	0.707	22.681
GOM winter flounder	6.576	0.115	0.000	6.576	5.423
Redfish	9.650	0.134	*0.000	6.302	9.650
White hake	7.662	0.121	0.000	7.662	6.506
Pollock	5.895	0.116	0.000	5.490	5.895
SNE/MA winter flounder	n/a	n/a	n/a	n/a	n/a

Notes:

Data do not include SNE/MA winter flounder. There are about 1,460 individual persons and permit banks in the data. PSC holdings data is accurate to nine decimal places.

* Value is equal to zero exactly. Other zero values represent a small fraction beyond four decimal places.

Table 37 - Stock-specific PSC holdings by individual human persons and permit banks, as of FY2013 (May 1, 2013).

Stock	All human persons and permit banks			Permit banks	Human persons	*Total individuals
	Max	Mean	Median	Max	Max	PSC >0
GB cod	11.955	0.149	0.001	6.226	11.955	1,082
GOM cod	9.512	0.119	0.001	9.512	2.628	1,018
GB haddock	14.788	0.165	0.000	2.352	14.788	827
GOM haddock	8.137	0.128	0.000	8.137	6.906	787
GB yellowtail	16.818	0.182	0.000	1.990	16.818	762
SNE/MA yellowtail	6.197	0.144	0.000	2.719	6.197	865
CC/GOM yellowtail	8.804	0.132	0.000	6.441	8.804	883
Plaice	8.871	0.143	0.001	8.871	8.492	878
Witch flounder	8.736	0.143	0.001	8.073	8.736	993
GB winter flounder	26.031	0.183	0.000	0.524	26.031	842
GOM winter flounder	9.138	0.122	0.000	7.467	9.138	901
Redfish	9.673	0.144	0.000	4.660	9.673	754
White hake	7.200	0.136	0.000	7.200	6.540	968
Pollock	5.881	0.130	0.001	4.943	5.881	1,080
SNE/MA winter flounder	15.853	0.159%	0.000%	1.489%	15.853%	1,016

Notes:

There are about 1,500 individual human persons and permit banks in the data. Zero values represent a small fraction beyond four decimal places, but do not equal zero exactly. PSC holdings data is accurate to nine decimal places.

***** The total number of individual human persons and permit banks with PSC >0 for the given stock.

Permit Banks. The Council is considering whether to apply an accumulation limit to all permit banks collectively (Section 5.3.2). Table 38 identifies the PSC held by permit banks for each allocated stock in the fishery. The maximum, mean, and median held by a permit bank are listed, as well as the total held by all permit banks. Permit banks included in the data are listed in the table.

Permit banks collectively hold the most PSC for GOM cod, white hake, plaice and pollock. Individually, a permit bank holds the most PSC for GOM cod, plaice, GOM haddock, and witch flounder.

Note: The data in Table 38 vary slightly from the permit bank data in Table 37. The data in Table 38 are provided directly by the ASPD at GARFO and thus should not have any error associated with data queries (as described in Section 6.5.4.1). Data discrepancies may be attributable to differences in actual permit/MRI holdings between the dates queried (~9 months).

Table 38 - FY2013 PSC held by all permit banks (state and private/nonprofit), as of January 28, 2014

	Maximum	Mean	Median	Total
GB cod	5.438	1.104	0.088	9.777
GOM cod	9.343	1.678	0.678	15.091
GB haddock	4.992	0.712	0.044	6.380
GOM haddock	8.314	1.249	0.092	11.237
GB yellowtail	1.692	0.242	*0.000	2.177
SNE/MA yellowtail	2.334	0.323	0.025	2.813
CC/GOM yellowtail	4.815	0.973	0.318	8.755
Plaice	8.788	1.444	0.288	12.996
Witch flounder	8.065	1.296	0.399	11.666
GB winter flounder	0.550	0.078	*0.000	0.704
GOM winter flounder	5.636	1.177	0.214	10.594
Redfish	6.3585	1.033	0.186	9.296
White hake	7.896	1.654	0.304	14.885
Pollock	6.048	1.304	0.140	12.053
SNE/MA winter flounder	1.203	0.227	0.018	1.622

Notes:

The PSC data was downloaded on January 28, 2014, from the NMFS Sector Information Portal. PSC holdings data is accurate to nine decimal places.

Permit banks included: the Maine State Permit Bank, New Hampshire State Permit Bank, Boston Sustainable Fishing Community Preservation Fund, Cape Cod Fisheries Trust, Gloucester Fishing Community Preservation Fund, NEFS XI Permit Bank, Penobscot East Permit Bank, South Shore Fishing Community Preservation Fund, and The Nature Conservancy/Island Institute Community Permit Bank.

* Value is >0.

6.5.4.4 Excessive Shares

Goal #4 of this action is to "Prevent any individual(s), corporation(s), or other entity(ies) from acquiring or controlling excessive shares of the fishery access privileges." During the course of developing this action, it was determined that additional expertise from an external contractor would be needed to help the Council determine whether excessive shares exist in the Northeast multispecies fishery today and to recommend an appropriate excessive shares limit in the fishery. In July 2013, Compass Lexecon was asked to provide such analysis. Their report was completed in December 2013 (Mitchell & Peterson 2013) and will be peer reviewed by the Center for Independent Experts in June 2014.

Compass Lexecon defined "excessive share" as:

> *"…a share of access rights that would allow a permit owner [holder] or sector to influence to its advantage the prices of the fishery's output…" (Mitchell & Peterson 2013, p. 2)*

They also linked the concepts of excessive shares and market power:

> *"The ability to manipulate prices to one's advantage based on the share of participation in a market is a typical example of what economists call market power." (Mitchell & Peterson 2013, p. 2)*

They received input from ~50 fishery stakeholders via surveys, interviews, and a webinar. They also analyzed NMFS fishery data, including fishery holdings at the business entity level. They assessed available models for evaluating the presence of market power and for their appropriateness for setting excessive share limits.

Their conclusions included:

> *"The evidence we analyzed does not support a conclusion that market power is currently being exercised through the withholding of ACE in any part of the groundfish fishery, nor is there evidence of market power in the sales of fish or transfers of permits." (Mitchell & Peterson 2013, p. 47)*

Thus, they concluded that, defined in terms of market power, excessive shares do not exist in the Northeast multispecies fishery today. Their report included recommendations for how excessive shares may be prevented in the future.

6.5.5 Commercial Fleet Characteristics

The overall trend since the start of sector management has been a decline in the number of vessels with a limited access groundfish permit, at a low of 1,177 in FY2012 (Table 39). Of those vessels, those with revenue from at least one groundfish trip have also declined, with 401 in FY2012. The proportion of vessels affiliated with a sector has increased each year since FY2010. A key aspect of Amendment 16 is the ability of a sector to jointly decide how its ACE will be harvested, through redistribution within a sector and/or transferring ACE between sectors. Because inactive sector vessels may benefit if other sector vessels harvest their allocation, changes in the number of inactive vessels may result from a transfer of allocation and not necessarily vessels exiting the fishery. Since FY2010, 35-37% of the vessels were inactive (no landings). Of these inactive vessels, 64-69% were affiliated with sectors.

Table 39 - Number of vessels by fishing year

	FY2009	FY2010	FY2011	FY2012
As of May 1 each Fishing Year:				
Total groundfish limited access eligibilities	1,464	1,441	1,422	1,408
Eligibilities held as CPH	81	94	168	228
During any part of the fishing year*:				
Total eligible vessels	1,459	1,409	1,321	1,223
Eligible vessels that did not renew a limited access groundfish permit	28	26	42	46
Vessels with a limited access groundfish permit	1,431	1,383	1,279	1,177
While under a limited access groundfish permit:				
... those with revenue from any species**	916	854	776	764
... those with revenue from at least one groundfish trip	566	445	419	401
... those with no landings	515	529	503	413
Percent of inactive (no landings) vessels	(36%)	(38%)	(39%)	(35%)

Source: Murphy et al (2014, Table 10).

* On May 1st of the fishing year the number of vessels will equal to the number of eligibilities not in Confirmation of Permit History (CPH). Over time the number of vessels will differ from the number of eligibilities because these eligibilities can be transferred from vessel to vessel during the fishing year. These numbers exclude groundfish limited access eligibilities held as CPH. Starting in 2010, Amendment 16 authorized CPH owners to join Sectors and to lease DAS. For purposes of comparison, CPH vessels are not included in the data for either Sector or Common Pool.

**Active vessels in this report received revenue from any species while fishing under a limited access groundfish permit.

6.5.6 Sector Fishery

In FY2010, the sector vessels landed the overwhelming majority of the groundfish ACL. Each sector receives a total amount of fish it can harvest for each stock, its Annual Catch Entitlement (ACE). Since the ACE is dependent on the amount of the ACL in a given fishing year, the ACE may be higher or lower from year to year even if the sector's membership remains the same. There are substantial shifts in ACE for various stocks between FY2009 and FY2012 (Table 40). There has been a general decrease in trips, and catch for sector vessels, and there has been a shift in effort out of the groundfish fishery into other fisheries. However, these changes may correlate to a certain extent with the decrease in ACL.

Combined, 161M (live) pounds of ACE was allotted to the sectors in FY2011, but only 70M (live) pounds were landed. Of the 16 stocks allocated to sectors, the catch of 7 stocks approached (>80% conversion) the catch limit set by the ACE (Table 41). By comparison, the catch of only five stocks approached the catch limit set by the total allocated ACE in FY2010. The catch of white hake in FY2011 was particularly close to reaching the limit, with 98% of the white hake ACE being realized. As was the case in FY2010, the majority of the unrealized landings in 2011 were caused by a failure to land Georges Bank haddock. Collectively, East and West GB haddock, accounted for 63M pounds (62%) of the uncaught ACE in FY2011.

Table 40 - Commercial groundfish sub-ACL, FY2009 to FY2012

Groundfish Stock	FY2009 TAC (lbs)	FY2010 ACL (lbs)	% Change 2009 to 2010	FY2011 ACL (lbs)	% Change 2010 to 2011	FY2012 ACL (lbs)	% Change 2011 to 2012
GB cod W	10,965,793	6,816,693	-37.84%	9,041,157	32.63%	9,795,138	8.34%
GB cod E	1,161,836	745,162	-35.86%	440,925	-40.83%	357,149	-19.00%
GOM Cod	23,642,373	10,068,512	-57.41%	10,637,304	5.65%	4,310,037	-59.48%
GB haddock W	171,861,356	62,725,923	-63.50%	46,164,798	-26.40%	45,322,632	-1.82%
GB haddock E	24,471,311	26,429,016	8.00%	21,252,562	-19.59%	15,167,804	-28.63%
GOM Haddock	3,448,030	1,818,814	-47.25%	1,715,196	-5.70%	1,439,619	-16.07
GB Yellowtail Flounder	3,564,875	1,814,404	-49.10%	2,517,679	38.76%	479,946	80.94%
SNE/MA Yellowtail Fl.	857,598	683,433	-20.31%	1,155,222	69.03%	1,675,513	45.04%
CC/GOM Yellowtail Fl.	1,895,975	1,717,401	-9.42%	2,072,345	20.67%	2,306,035	11.28%
Plaice	7,085,657	6,278,765	-11.39%	6,851,967	9.13%	7,226,753	5.47%
Witch Flounder	2,489,019	1,878,338	-24.53%	2,724,914	45.07%	3,192,294	8.34%
GB Winter Flounder	4,418,064	4,082,961	-7.58%	4,424,678	8.37%	7,467,057	68.76%
GOM Winter Flounder	835,552	348,330	-58.31%	348,330	0.00%	1,576,305	352.53%
Redfish	18,990,619	15,092,846	-20.52%	16,625,059	10.15%	18,653,483	10.40
White Hake	5,238,183	5,635,015	7.58%	6,556,548	16.35%	7,237,776	10.39%
Pollock	13,990,535	36,493,118	160.84%	30,758,895	-15.71%	27,804,700	-9.60%
Totals	**294,916,777**	**182,628,733**	**-38.07%**	**163,287,579**	**-10.59%**	**153,712,242**	**-5.86%**

Table 41 - Annual Catch Entitlement (ACE) and catch (live lbs.)

	2010			2011			2012		
	Allocated ACE	**Catch**	**% caught**	**Allocated ACE***	**Catch**	**% caught**	**Allocated ACE***	**Catch**	**% caught**
Cod, GB East	717,441	562,610	*78%*	**431,334**	**357,578**	***83%***	350,835	148,576	*42%*
Cod, GB West	**6,563,099**	**5,492,557**	***84%***	9,604,207	6,727,837	*70%*	10,542,407	3,363,415	*32%*
Cod, GOM	**9,540,389**	**7,991,172**	***84%***	**11,242,220**	**9,561,153**	***85%***	9,008,557	4,808,408	*53%*
Haddock, GB East	26,262,695	4,122,910	*16%*	21,122,565	2,336,964	*11%*	15,126,216	806,562	*5%*
Haddock, GB West	62,331,182	13,982,173	*22%*	50,507,974	6,101,400	*12%*	51,898,296	1,832,577	*4%*
Haddock, GOM	1,761,206	819,069	*47%*	1,796,740	1,061,841	*59%*	1,599,136	540,299	*34%*
Plaice	6,058,149	3,305,950	*55%*	7,084,289	3,587,356	*51%*	7,771,254	3,530,494	*45%*
Pollock	35,666,741	11,842,969	*33%*	32,350,451	16,297,273	*50%*	30,670,586	14,097,873	*46%*
Redfish	14,894,618	4,647,978	*31%*	17,369,940	5,951,045	*34%*	19,933,122	9,751,824	*49%*
White hake	**5,522,677**	**4,687,905**	***85%***	**6,708,641**	**6,598,273**	***98%***	7,527,513	5,394,273	*72%*
Winter flounder, GB	4,018,496	3,036,352	*76%*	**4,679,039**	**4,241,177**	***91%***	7,752,484	4,256,996	*55%*
Winter flounder, GOM	293,736	178,183	*61%*	750,606	343,152	*46%*	1,590,301	568,828	*36%*
Witch flounder	**1,824,125**	**1,528,215**	***84%***	2,839,697	2,178,941	*77%*	3,409,459	2,162,678	*63%*
Yellowtail flounder, CC/GOM	1,608,084	1,268,961	*79%*	**2,185,802**	**1,743,168**	***80%***	**2,448,240**	**2,103,947**	***86%***
Yellowtail flounder, GB	**1,770,451**	**1,625,963**	***92%***	**2,474,662**	**2,176,921**	***88%***	802,654	474,540	*59%*
Yellowtail flounder, SNE	517,372	340,662	*66%*	**963,033**	**795,267**	***83%***	1,422,815	938,303	*66%*
Total	179,350,461	65,433,630	*36%*	172,111,201	70,059,346	*41%*	171,853,874	54,779,592	*32%*

Notes: Stocks with > 80% ACE conversion highlighted in bold. 2010 and 2011 data from Murphy et al (Table 37, 2012a). FY12 data from GARFO.
*includes carryover from the prior fishing year.

6.5.6.1 ACE Trading

Starting with allocations in FY2010, each sector was given an initial ACE determined by the pooled potential sector contribution (PSC) from each entity joining that sector. Every limited access groundfish permit also has a tracking identification number called a Moratorium Right Identifier (MRI). PSC is technically allocated to MRIs, which are subsequently linked to vessels through Northeast Multispecies limited access fishing permits. A vessel's PSC is a percentage share of the total allocation for each allocated groundfish stock based on that vessel's fishing history. Once a sector roster and associated PSC is set at the beginning of a fishing year, each sector is then able to distribute its ACE among its members. By regulation, ACE is pooled within sectors, however most sectors seem to follow the practice of assigning catch allowances to member vessels based on PSC allocations. This is an important assumption because vessels catching more than their allocation of PSC must have leased additional quota, either as PSC from within the sector or as ACE from another sector.

During FY2010, 282 sector-affiliated MRIs had catch that exceeded their individual PSC allocations for at least one stock. These vessels are then assumed to have leased in an additional 22M pounds of ACE and/or PSC with an approximate value of $13.5M. In FY2011, 256 sector-affiliated vessels had catch that exceeded their individual PSC allocations. These vessels are then assumed to have leased in 31M pounds of quota. Although the number of vessels leasing ACE fell by 9% the estimated number of pounds leased was almost 41% greater in FY2011 than in FY2010 (Murphy, et al. 2012a). There were 241 sector-affiliated MRIs had catch that exceeded individual PSC allocations for at least one stock. These MRIs leased in >23M pounds of ACE and/or PSC in FY2012 (Murphy, et al. 2014).

6.5.6.2 Permit Banks

6.5.6.2.1 State-operated Permit Banks

Amendment 17 to the Northeast multispecies FMP defined a NOAA-sponsored, state-operated permit bank as a:

> *"...partnership between NOAA and one or more states in which Federal grant funds are used by the state(s) to establish a bank of Federal fishing vessel permits and to obtain Federal fishing vessel permits so that the fishing access privileges associated with those permits may be allocated by the state(s) to qualifying commercial fishermen and sectors according to criteria to which NOAA and the state(s) have agreed."*

These permit banks are:

> *"...subject to U.S. Department of Commerce regulations regarding program income, such that any revenue generated by the permit banks may only be used to defray the program costs of operating the permit bank, or must be returned to the Federal Government to reduce the amount of the initial grant award."*

For FY2011, there were no official state-operated permit banks, because Amendment 17 had not been finalized, and the State of Maine had permits enrolled in a sector. For FY2012, there were two state-operated permit banks, in Maine and New Hampshire. These permit banks continue to operate today.

6.5.6.2.2 Nonprofit Permit Banks

There is no standard definition of "nonprofit permit bank," though this term has generally been used to refer to organizations with nonprofit status (e.g., 501(c)3) that hold Federal Northeast Multispecies Permits for the purpose of leasing ACE to active fishermen. The existing regulations to not distinguish between private permit banks and commercial business entities that lease ACE, though this is a topic that has been considered in Amendment 18. All entities must enroll permits in sectors to receive the Annual Catch Entitlement (ACE) allocation (state-operated permit banks excepted).

6.5.6.2.3 Permit Bank Activity

During the development of Amendment 18, the PDT queried the state and nonprofit permit banks, to help the Groundfish Committee answer the question:

> *In the absence of accumulation limits and fleet diversity measures today, how are permit banks helping foster diversity in the fishery?*

A brief and voluntary questionnaire was developed, which was then reviewed by and sent on behalf of the Committee Chairman to representatives of nine state and nonprofit permit banks with Federal Northeast Multispecies permits. For some, their primary focus is to acquire and hold permits to provide allocation to active fishermen. For others, operating the permit bank is just one of a suite of activities for the organization. The representatives were asked to provide short responses (NEFMC 2013b), which are summarized here.

Permit banks have formed primarily in response to concerns and evidence that the catch share management system poses challenges for smaller-scale fishing businesses to remain viable. Each permit bank has a unique mission, but they generally exist to help provide fishing opportunities for specific segments of the industry (e.g., specific ports, gear types, vessel sizes), with a larger aim of providing stability for the industry and fishing communities. Some permit banks also specifically assist new entrants to the fishery or provide business planning services. In total, the permit banks own more than 95 Federal Northeast Multispecies Permits. The state-operated permit banks have acquired permits primarily using federal dollars. Nonprofit organizations have financed permits through grants and loans.

ACE is distributed according to the mission of each permit bank. Some permit banks are established to lease ACE to fishermen in a particular sector, community, or state. For others, a set group has priority for the ACE, but if unused by the priority group, then the ACE is distributed on the open market. Some permit banks offer an equal share of ACE to all qualifying participants. Others identify needs through informal networks or more structured application processes. In total, the permit banks reported leasing ACE used by at least 170 sector vessels, though duplicates are unknown. Across all the permit banks, ACE is distributed to a diverse range of groundfish sector members in terms of gear types, vessel sizes, and fishing ports. Lease price determinations vary across the permit banks, but for the most part, ACE is offered to eligible buyers at prices lower than market value. Rates of groundfish ACE leased out by the permit banks has varied with the specific allocation portfolio and demands for quota within target segments of the industry. Some fishermen use the revenue from permit bank ACE landings as capital to enter the open leasing market. Fishermen have been able to harvest more of the allocation associated with their own permits by using permit bank ACE for the low-allocation "choke" stocks (NEFMC 2013b).

6.5.7 Common Pool Fishery

With the adoption of Amendment 16, most commercial groundfish fishing activity occurs under sector management regulations. There are, however, a few vessels that are not members of sectors and continue to fish under the effort control system. Collectively, this part of the fishery is referred to as the "common pool." These vessels fish under both limited access and open access groundfish fishing permits. Common pool vessels accounted for only a small amount of groundfish catch in FY2012 (Table 52). The largest common pool catch (pollock, 67.8 mt) was only 0.8% of the total groundfish fishery catch of this stock. Common pool vessels caught 0.8% of the GOM cod and 0.2% of the GOM haddock groundfish fishery catch.

6.5.7.1 Landings and Revenue

Common pool vessels with limited access permits landed 1.3M lbs. (landed lbs.) of regulated groundfish in FY2010, worth over $2M in ex-vessel revenues (Table 42). Landings declined to 518K lbs., worth about $850,000 in FY2011and declined again in FY2012 to 358K lbs., worth $642,000. Most common pool vessel groundfish fishing activity takes place in the state of Massachusetts. From FY2010 to FY2011, the activity from Maine ports declined dramatically and from FY2011 to FY2012 the decline can be seen in Massachusetts (Table 43). The primary ports for this activity over the last 4 years (FY2009-2012) are Gloucester, Portland, and New Bedford (Table 44).

Table 42 - Summary of common pool fishing activity

		A	C	D	E	HA	Total
FY2010	Permits landing groundfish	78	4	6	5	33	**126**
	Groundfish lbs. landed	1,256,311	1,843	2,012	596	35,367	**1,296,129**
	Groundfish revenues	$1,981,076	$4,727	$3,643	$682	$64,056	**$2,054,184**
FY2011	Permits landing groundfish	61	6	3	12	32	**115**
	Groundfish lbs. landed	401,715	31,844	2,836	1,990	80,441	**518,831**
	Groundfish revenues	$601,506	$62,408	$7,042	$2,634	$175,929	**$849,526**
FY2012	Permits landing groundfish	56	6		8	25	**98**
	Groundfish lbs. landed	281,212	52,955		1,954	22,251	**358,414**
	Groundfish revenues	$479,051	$109,630		$2,522	$51,132	**$642,414**

Notes: Confidential data excluded.

Table 43 - Common pool groundfish landings by state of trip (landed lbs.)

	FY2010	FY2011	FY2012
CT	1,574	2,561	1,579
MA	809,231	372,282	169,662
MD		88	375
ME	344,783	49,559	49,260
NC	315		
NH	6,547	25,912	26,634
NJ	13,128	19,060	20,628
NY	94,900	37,115	58,331
RI	24,712	12,248	31,944
VA	916		
Total	**1,296,106**	**518,825**	**358,414**

Note: Confidential data removed

Table 44 - Common pool groundfish landings by port (landed lbs.)

Port	FY2010	FY2011	FY2012
Gloucester, MA	372,481	260,347	150,405
Portland, ME	333,852	40,520	34,054
New Bedford, MA	278,221	39,884	8,248
Provincetown, MA	100,952	51,561	2,116
Montauk, NY	75,460	17,894	54,212
Sandwich, MA	40,385	2,666	0
Point Judith, RI	3,478	4,708	13,161
Little Compton, NY	20,787	7,478	15,952
Hampton Bays, NY	13,512	6,807	3,770
Plymouth, MA	4,527	4,444	0
Rye, NH	1,491	20,304	21,845
Point Pleasant, NJ	9,043	16,932	15,195

The primary groundfish stocks landed by common pool vessels include GOM cod, GB cod, and pollock (Table 45). GB haddock was an important component in FY2010 but not in FY2011 or FY2012. Vessels using HA and HB permits on groundfish trips primarily target GB and COM cod, GOM haddock, and pollock.

For the common pool permits that landed at least one pound of regulated groundfish in either FY2010 or FY2011, groundfish revenues were a major portion of revenues on groundfish fishing trips. Groundfish revenues were 80% or more of the trip revenues for 49% of these vessels; they were 60% of the revenues for 61.5% of these vessels. Dependence on groundfish was greatest for HA permitted vessels, with 70% of these vessels earning all revenues on these trips from regulated groundfish.

Table 45 - Common pool landings (landed lbs.) by permit category and stock

FY2010 Landings	A	C	D	E	HA	Total
GB Cod W	109,582	1,120	1,269		6,179	118,150
GOM Cod	350,947	651			17,048	368,646
GB Haddock W	177,033				202	177,235
GOM Haddock	12,257				995	13,252
GB Yellowtail Flounder	17,260					17,260
SNE Yellowtail Flounder	32,901			596		33,497
CC/GOM Yellowtail Flounder	35,969				245	36,214
Plaice	48,020				112	48,133
Witch Flounder	57,158					57,158
GB Winter Flounder	13,011					13,011
GOM Winter Flounder	45,172				250	45,423
SNE Winter Flounder	4,646					4,646
Redfish	14,007				763	14,769
White Hake	68,756				139	68,894
Pollock	265,840		730		9,156	275,726
Southern Windowpane	3,566					3,566
Halibut	162				255	417
Wolffish	3					3
Total	**1,256,290**	**1,771**	**1,999**	**596**	**35,344**	**1,296,000**
FY2011 Landings	**A**	**C**	**D**	**E**	**HA**	**Total**
GB Cod W	102,450	3,186	168		15,577	121,382
GB Cod E	3,340					3,340
GOM Cod	53,984	18,816	2,666		54,982	130,448
GB Haddock W	33,053				85	33,138
GOM Haddock	1,945	161			763	2,869
GB Yellowtail Flounder	3,944			1,521		5,465
SNE Yellowtail Flounder	25,272					25,272
CC/GOM Yellowtail Flounder	23,408	66		19		23,493
Plaice	10,213	686				10,899
Witch Flounder	9,448	972				10,420
GB Winter Flounder	2,411					2,411
GOM Winter Flounder	5,257	374				5,631
SNE/MA Winter Flounder	816					816
Redfish	7,208	38			147	7,393
White Hake	19,901	2,890			177	22,968
Pollock	89,533	4,653			7,644	101,830
Northern Windowpane	850					850
Southern Windowpane	8,607					8,607
Halibut					1,065	1,065
Total	**401,640**	**31,842**	**2,834**	**1,540**	**80,441**	**518,297**

FY2012 Landings	A	C	D	E	HA	Total
GB Cod W	38,725	266			9,428	48,419
GOM Cod	13,209	22,379	16		8,983	44,587
GB Haddock W	13,373					13,373
GOM Haddock	1,117	420			470	2,007
GB Yellowtail Flounder	758			1,550		2,308
SNE Yellowtail Flounder	77,293			285		77,578
CC/GOM Yellowtail Flounder	876	799				1,675
Plaice	4,028	1,443				5,471
Witch Flounder	3,671	795				4,466
GB Winter Flounder	1,626					1,626
GOM Winter Flounder	669	1,775				2,444
SNE Winter Flounder	278					278
Redfish	11,678	253			25	11,956
White Hake	19,936	10,586			160	30,682
Pollock	92,614	14,221			3,122	109,957
Southern Windowpane	940					940
Ocean Pout		18				18
Halibut	218					218
Total	**281,010**	**52,955**	**16**	**1,835**	**22,188**	**358,004**

6.5.7.2 Trimesters

Amendment 16 established that in FY2012, the common pool would be managed with a trimester sub-ACL versus an annual one for all stocks except SNE/MA winter flounder, windowpane flounder, ocean pout, Atlantic wolffish, and Atlantic halibut. Table 46 shows the common pool sub-ACL and cumulative catch since FY2010, broken down by trimesters. Given that the trimester approach was instituted in FY2012, the percent of total catch in the trimesters for FY2010 and FY2011 are estimates.

In FY2010 and FY2011, most of the common pool effort occurred within the first three months of the fishing year. This could be due to a preference for fishing in seasonable weather, but there could also be a "race to fish" factor in play. The annual sub-ACLs were not exceeded.

Since the implementation of trimesters, the common pool has exceeded its trimester sub-ACL in a few cases (noted in red, Table 2). Both the annual and the trimester Gulf of Maine haddock sub-ACL was exceeded during the first trimester of FY2013. NMFS published a notice on July 16, 2013 that the GOM Haddock Trimester Total Allowable Catch (TAC) Area would be closed for the remainder of the first trimester (through August 31), because the common pool had caught 147% of its Trimester 1 TAC for this stock. NMFS cited that "because there are relatively few common pool vessels, and the Trimester 1 TAC for GOM haddock is so small, it was difficult to project when 90% of the Trimester TAC would be reached" (NMFS 2013c). Then, based on data reported through August 21, 2013, the common pool fishery caught 96% of its annual Gulf of Maine haddock allocation of 2 mt, despite the closure. NMFS projected that the annual allocation would likely be exceeded, so the GOM haddock trip limit was reduced to zero for all common pool vessels, effective August 28, 2013 through the remainder of the fishing year (NMFS 2013b).

Table 46 – Common pool sub-ACL and catch

	Annual sub-ACL (mt)	Trimester 1 (5/1–8/31)		Trimester 2 (9/1-12/30)		Trimester 3 (1/1-4/30)		Annual Catch	
		sub-ACL	Catch (% total or mt)	sub-ACL	Catch (% total or mt)	sub-ACL	Catch (% total or mt)	Total	% of annual sub-ACL
FY2010									
GOM cod	240	n/a	97%	n/a	2%	n/a	1%	226.0	94%
GOM haddock	26	n/a	83%	n/a	3%	n/a	14%	7.1	27%
Pollock	375	n/a	n.d.	n/a	n.d.	n/a	n.d.	151.2	40%
FY2011									
GOM cod	104	n/a	64%	n/a	20%	n/a	16%	93.4	90%
GOM haddock	8	n/a	48%	n/a	5%	n/a	48%	1.9	24%
Pollock	104	n/a	n.d.	n/a	n.d.	n/a	n.d.	69.2	67%
FY2012									
GOM cod	80.0	21.6	22.0	29.9	6.1	28.5	1.8	29.9	37%
GOM haddock	5.0	1.2	0.8	1.7	0.1	2.1	0	0.9	18%
Pollock	82.0	22.9	18.9	33.4	40.0	25.7	8.9	67.8	82%
FY2013									
GOM cod	18	4.9	3.2	8.3	0.3	4.8	tbd	3.3	18%
GOM haddock	2	0.5	2.0	0.5	0.1	1.0	tbd	2.1	105%
Pollock	91	23.4	12.7	44.7	5.5	23	tbd	18.1	20%

Notes:
Data from NOAA Fisheries Northeast Multispecies (Groundfish) Monitoring Reports. http://www.nero.noaa.gov/ro/fso/MultiMonReports.htm. FY2010 and FY2011 trimester catch are estimates of the % of total annual catch. "n.d." = Estimate was not available in time for this memo. Shading notes when a sub-ACL was exceeded. FY2013 data as of 10/9/13. These data are the best available to NMFS when this report was compiled. Data for this report may be supplied to NMFS from the following sources: (1) vessels via Vessel Monitoring System; (2) Vessel Trip Reports; (3) fish dealer purchase reports; and the (4) NOAA Fisheries Service Observer Program, through audited observer reports submitted by the NEFSC. Data in this report are for landings made through September 04 2013 and may be preliminary. Differences with data from previous reports are due to corrections made to the database and updates to observer data.

There are a number of convergent factors that cause managing the common pool quotas by trimesters challenging. For quotas that are as small as those for the common pool trimesters, the current data delivery systems make it difficult to estimate in-season when 90% of the TAC (and total TAC) is projected to be reached. For GOM haddock in FY2013, the trimester sub-ACLs are particularly small. When the common pool fleet was alerted that this TAC was approaching full utilization, rather than slowing or stopping fishing, some continued to fish. Following the closure, additional landings data from prior weeks was submitted to the NMFS Greater Atlantic Regional Office (GARFO) and processed. These exceeded the quota.

6.5.8 Handgear A Fishing Activity

6.5.8.1 Active HA Permits

The alternatives in Section 4.3 propose revisions to regulations for fishing with a Handgear A (HA) permits. This section provides related background information.

Handgear A permits operating in the common pool are restricted to using only handgear or a limited amount of tub trawl gear (250 hooks). Amendment 16 allowed HA permits to be enrolled in sectors, and thus, the ACE associated with these permits can be leased and harvested using other gear types.

In FY2013, there were 103 HA permits renewed. This includes 20 HA permits enrolled in seven unique sectors, of which one was actively fished. The ACE associated with the other 19 HA permits in sectors was leased, potentially for use by vessels fishing with other gear types. There were 83 HA permits enrolled in the common pool. As of early September 2013, 21 of these had been used to actively fish. Since the common pool fishery closed on January 1, 2014 and HA fishing is infrequent in October to December, it is unlikely that additional permits have been actively used in FY2013. For FY2014, there are 111 HA permits renewed, but the distribution between sectors and the common pool has not been finalized.

HA permits account for a small fraction of the total groundfish fishery. Landings and revenue from harvests with HA permits account for less than 0.2% of the fishery-wide totals (Table 47). Table 48 shows, by stock, the estimate of the FY2013 Annual Catch Entitlement (ACE) distribution between sectors and the common pool. The majority (62.9%) of ACE is associated with sectors, though for Gulf of Maine cod, the split is about even. Technically, these data are "potential" ACE, because permits enrolled in the common pool do not have ACE calculated. PSC is not turned into ACE in the common pool (i.e., they are not constrained to anything but the total common pool sub-ACL/trip limit/trimester TAC for any given stock). Confidentiality rules prohibit reporting the split of sector ACE associated with HA permits between ACE actively harvested vs. leased, because only one HA permit is being actively harvested in a sector.

Table 47 - Contribution of HA permits to the commercial groundfish fishery

		HA permits[1]	Total Common Pool[2]	Total Fishery[2]
FY2010	Groundfish Pounds Landed	36,844	1,404,614	58,622,152
	Groundfish Revenues	$59,727	$2,234,905	$82,984,988
FY2011	Groundfish Pounds Landed	91,585	595,705	61,721,659
	Groundfish Revenues	$167,838	$971,226	$90,115,537

[1] *Source:* NEFMC (2013a, Table 43).
[2] *Source:* Murphy et al. (2012b, Table 2)

Table 48 - Estimate of FY13 potential ACE contribution of allocated stocks held by HA permits.

	HA permits FY13 ACE contribution		
Stock	**Total HA (lbs)**	**% Sector**	**% Common Pool**
GB Cod East	350	9.8%	90.2%
GB Cod West	6,516	9.8%	90.2%
GOM Cod	13,428	48.0%	52.0%
GB Haddock East	1,366	9.9%	90.1%
GB Haddock West	8,167	9.9%	90.1%
GOM Haddock	464	7.3%	92.7%
GB Yellowtail Flounder	36	52.3%	47.7%
SNE/MA Yellowtail Flounder	108	12.5%	87.5%
CC/GOM Yellowtail Flounder	249	21.0%	79.0%
Plaice	555	8.6%	91.4%
Witch Flounder	123	11.4%	88.6%
GB Winter Flounder	632	0.7%	99.3%
GOM Winter Flounder	177	22.5%	77.5%
Redfish	16,809	93.2%	6.8%
White Hake	14,309	86.1%	13.9%
Pollock	59,968	69.1%	30.9%
SNE/MA Winter Flounder	250	1.3%	98.7%
Total	**123,505**	**62.9%**	**37.1%**

Note: Data from NMFS GARFO, updated September 30, 2013.

6.5.8.2 HA Permit Kept Catch and Discards

The alternatives in this action consider creating a new HA fishery sub-ACL for the five stocks primarily landed by vessels fishing with HA permits (GOM cod, GOM haddock, GOM haddock, GB haddock, pollock) and accounting for the catch of non-target stocks under the other sub-components sub-ACL (Section 4.3). To understand what the potential catch (kept catch and discards) by vessels fishing in the HA fishery would be, information about recent HA effort on these stocks is provided here. Table 49 illustrates the magnitude of the HA ACE, catch, and discards for HA permits for FY2010-2013. HA discards are also shown as a percent of the commercial sub-ACL and of the commercial discards. For the stocks for which a HA sub-ACL is not being considered in this action, the discards by HA vessels are <0.04%% of the total commercial sub-ACL and <0.11% of the commercial discards.

Table 49 - Handgear A ACE, kept catch, and discards for all stocks (weight in lb.), FY2010-2013.

		FY2010	FY2011	FY2012	FY2013
Stocks for which a HA sub-ACL is being considered					
GOM cod					
	ACE	82,810	81,230	65,357	13,450
	Kept catch	19,873	67,523	11,030	11,030
	Discards	795	4,509	3,382	146
	Discards wrt comm. ACL*	0.005%	0.027%	0.024%	0.005%
	Discards wrt comm. discards**	0.326%	1.209%	0.135%	n.d.
GB cod					
	ACE	18,189	19,143	19,843	6,901
	Kept catch	6,639	923	10,671	10,001
	Discards	3,914	923	211	11
	Discards wrt comm. ACL*	0.052%	0.010%	0.002%	0.000%
	Discards wrt comm. discards**	1.301%	0.238%	0.072%	n.d.
GOM haddock					
	ACE	1,789	1,961	1,639	464
	Kept catch	1,133	1,304	859	3,361
	Discards	11	73	32	140
	Discards wrt comm. ACL*	0.000%	0.003%	0.002%	0.024%
	Discards wrt comm. discards**	0.172%	0.441%	0.043%	n.d.
GB haddock					
	ACE	22,751	11,164	10,017	9,533
	Kept catch	231	97	30	116
	Discards	5	73	20	1
	Discards wrt comm. ACL*	0.000%	0.000%	0.000%	0.000%
	Discards wrt comm. discards**	0.006%	0.040%	0.003%	n.d.
Pollock					
	ACE	82,085	65,421	58,944	59,972
	Kept catch	10,357	10,319	5,163	9,014
	Discards	33,	595	620	681
	Discards wrt comm. ACL*	0.001%	0.002%	0.002%	0.002%
	Discards wrt comm. discards**	0.177%	0.238%	0.274%	n.d.
Other stocks					
GB yellowtail flounder					
	ACE	624	347	112	47
	Kept catch	0	0	0	0
	Discards	0	0	0	0
	Discards wrt comm. ACL*	0.000%	0.000%	0.000%	0.000%
	Discards wrt comm. discards**	0.000%	0.000%	0.000%	n.d.
SNE/MA yellowtail flounder					
	ACE	120	99	144	111
	Kept catch	0	0	0	0
	Discards	9	60	47	37
	Discards wrt comm. ACL*	0.001%	0.005%	0.003%	0.003%
	Discards wrt comm. discards**	0.043%	0.140%	0.049%	n.d.

Table 49 – Cont.

	FY2010	FY2011	FY2012	FY2013
Other stocks cont.				
CC/GOM yellowtail flounder				
ACE	4,708	490	544	249
Kept catch	247	0	1	0
Discards	459	782	324	309
Discards wrt comm. ACL*	0.027%	0.038%	0.014%	0.029%
Discards wrt comm. discards**	0.266%	0.411%	0.131%	n.d.
Plaice				
ACE	4,051	1,215	1,281	555
Kept catch	112	0	3	0
Discards	80	366	14	53
Discards wrt comm. ACL*	0.001%	0.005%	0.000%	0.001%
Discards wrt comm. discards**	0.020%	0.085%	0.003%	n.d.
Witch flounder				
ACE	1,714	245	292	123
Kept catch	0	0	1	0
Discards	34	140	11	20
Discards wrt comm. ACL*	0.002%	0.005%	0.000%	0.001%
Discards wrt comm. discards**	0.025%	0.102%	0.008%	n.d.
GB winter flounder				
ACE	494	360	607	632
Kept catch	0	0	0	0
Discards	0	0	0	0
Discards wrt comm. ACL*	0.000%	0.000%	0.000%	0.000%
Discards wrt comm. discards**	0.000%	0.000%	0.000%	n.d.
GOM winter flounder				
ACE	310	82	177	177
Kept catch	253	0	0	9
Discards	84	121	0	6
Discards wrt comm. ACL*	0.024%	0.017%	0.000%	0.000%
Discards wrt comm. discards**	0.794%	1.076%	0.000%	n.d.
Redfish				
ACE	13,152	12,543	13,849	16,809
Kept catch	763	160	79	100
Discards	11	68	18	34
Discards wrt comm. ACL*	0.000%	0.000%	0.000%	0.000%
Discards wrt comm. discards**	0.003%	0.017%	0.003%	n.d.
White Hake				
ACE	9,778	11,034	12,204	14,309
Kept catch	186	244	218	65
Discards	46	374	450	44
Discards wrt comm. ACL*	0.001%	0.006%	0.006%	0.001%
Discards wrt comm. discards**	0.058%	0.505%	0.534%	n.d.

Table 49 – cont.

SNE/MA winter flounder* **					
	ACE**	n/a	n/a	n/a	250
	Kept catch	n/a	n/a	n/a	0
	Discards	0	88	1381	155
	Discards wrt comm. ACL*	0.000%	0.005%	0.207%	0.006%
	Discards wrt comm. discards**	0.000%	0.044%	0.595%	n.d.

Notes: Discard data for the common pool is calculated based on observed discards using trawl and gillnet gear, not handgear. Thus, discard data presented here may be higher than actual. Catch data includes common pool and sector catch.

n.d. = Final discard data for FY2013 not available yet.
* "Discards wrt comm. ACL" = HA discards as a percent of the total commercial sub-ACL.
** "Discards wrt comm. discards" = HA discards as a percent of the total commercial discards.
*** SNE/MA winter flounder was not allocated until FY2013.

Source: GARFO, March 2014.

6.5.8.3 Standard Fish Tote Requirement

In 1994, through an Emergency Rule and subsequently in Amendment 5, standard totes were required of all vessels. At the time, it was intended to enforce a haddock trip limit in the groundfish fishery (500 pounds for large-mesh vessels), or in other fisheries, enforce the allowed retention of a small amount of groundfish (e.g., July-December for the scallop fishery). The premise was that the standard totes help keep fish separate and could be used as a volumetric benchmark by the Coast Guard.

In 1996, through Amendment 7, a DAS limit for haddock was created, and NMFS specifically required a standard tote for all multispecies trips, as well as for handgear vessels that were allowed cod, haddock, and/or yellowtail. In other words, totes were required of everyone, not just a specific permit category.

Subsequently, NMFS published possession limits for cod, pollock, winter flounder, etc., but did not specify the tote requirement in each case. NMFS has intended to keep the requirement for all permit types, but in fact, the requirement now only applies in a few instances, including vessels fishing with a Handgear A multispecies permit.

6.5.9 Commercial Effort

The groundfish fishery has traditionally been made up of a diverse fleet, comprised of a range of vessels sizes and gear types. Over the years, as vessels entered and exited the fishery, the typical characteristics defining the fleet changed as well. The number of active vessels has declined each year since at least FY2009. This decline has occurred across all vessel size categories (Table 50). Since FY2009, the 30' to < 50' vessel size category, which has the largest number of active groundfish vessels, experienced a 32% decline (305 to 206 active vessels). The <30' vessel size category, containing the least number of active groundfish vessels, experienced the largest (53%) reduction since FY2009 (34 to 16 vessels). The vessels in the largest (≥75') vessel size category experienced the least reduction (9%) since FY2009.

Table 50 - Vessel activity by size class

	FY2009	FY2010	FY2011	FY2012
Vessels with landings from any species				
Less than 30	73	65	51	48
30 to < 50	478	455	398	396
50 to < 75	236	217	211	205
75 and above	129	117	116	115
Total	**916**	**854**	**776**	**764**
Vessels with at least one groundfish trip				
Less than 30	34	24	20	16
30 to < 50	305	240	216	206
50 to < 75	157	118	117	115
75 and above	70	63	66	64
Total	**566**	**445**	**419**	**401**

Source: Murphy et al. (2014, Tables 13 and 14).

Some of the proposed benefits of a catch share system of management are the potential efficiency gains associated with increasing operational flexibility (NOAA 2010). Being released from the former effort controls, but being held to ACLs, sector vessels were expected to increase their catch per unit effort by decreasing effort. Between 2009 and FY2010, the number of groundfish fishing trips[45] and total days absent on groundfish trips declined by 48% and 27%, respectively (Table 51).[46] During the second year of sector management, 2011, the number of groundfish fishing trips and total days absent on groundfish trips increased. Effort on groundfish trips generally decreased in FY2012. Vessels took fewer groundfish trips, with fewer total days absent of groundfish trips, though average trip length increased slightly over FY2011.

The groundfish fleet overall took fewer non-groundfish trips in FY2012 than they did in FY2009-FY2011, but those trips are longer than they were in FY2010 and FY2011 (Table 51).

[45] "Groundfish trip" is defined as a trip where the vessel owner or operator declared, either through the vessel monitoring system or through the interactive voice response system, that the vessel was making a groundfish trip.
[46] The data is taken from different source materials (VMS, etc.) than other data in this document, and thus, may be slightly different than.

The total number of non-groundfish trips taken by the fleet in FY2012 was 32,523 trips, a four year low and 3.4% lower than in FY2011. However, for the fleet overall, the total number of days absent on non-groundfish trips in FY2012 was higher than it was in 2011, with 635 (2.3%) more days absent. Furthermore, although the total number of days absent was 9.4% fewer than 2009, the average trip length in 2012 was the same as 2009 (0.92 days per trip) and higher than in 2010 and 2011 (0.86 days per trip).

Table 51 - Effort by active vessels

	FY2009	FY2010	FY2011	FY2012
Number of trips				
groundfish	25,897	13,474	15,958	14,496
non-groundfish	37,173	38,489	33,675	32,523
Number of days absent on trips				
groundfish	24,605	18,401	21,465	19,935
non-groundfish	31,606	31,352	27,997	28,632
Average trip length*				
groundfish	0.96	1.37	1.35	1.38
(std. dev.)	(1.74)	(2.14)	(2.20)	(2.19)
non-groundfish	0.92	0.86	0.86	0.92
(std. dev.)	(1.66)	(1.56)	(1.52)	(1.62)

Source: Murphy et al. (2014, Table 15).

*This is the average trip length of all individual trips that have non-missing values for days absent. Since some trip records have missing values for days absent, average trip length reported here may be higher than what is obtained by dividing the overall number of days absent by the overall number of trips.

6.5.9.1 Groundfish Catch

The Northeast Multispecies FMP specifies Annual Catch Limits (ACLs) for 20 stocks. Exceeding an ACL for a stock results in the implementation of Accountability Measures (AMs) to prevent overfishing. The ACL is sub-divided into different components. Those components that are subject to AMs are referred to as sub-ACLs. There are also components of the fishery that are not subject to AMs. These include state waters catches that are outside of federal jurisdiction, and a category referred to as "other sub-components" that combines small catches from various fisheries.

Table 52 to Table 54 describe FY2013 catches. As shown in Table 53, catches exceed ACLs for a few stocks: XXXX. Table 54 summarizes catches by non-groundfish components of the ACLs. Assignment of these catches to a specific FMP is difficult unless the FMP uses a specific gear (e.g., the scallop fishery) or has a trip activity declaration (e.g., groundfish and monkfish trips). For this reason, the assignment of catch to FMP should be viewed with caution.

Table 52 - FY2013 catches of regulated groundfish stocks (metric tons, live weight)

Stock	Components with ACLs and sub-ACLs (with accountability measures (AMs))								sub-components (No AMs)	
	Total Groundfish	Groundfish Fishery	Sector	Common Pool	Rec.*	Midwater Trawl Herring Fishery**	Scallop Fishery	Small Mesh Fisheries	State Water	Other
	A to H	A+B+C	A	B	C	D	E	F	G	H
GB Cod	1,616.3	1,572.9	1,540.6	32.3					9.2	34.2
GOM Cod	1,418.8	1,380.1	732.0	8.8	639.3				35.8	2.9
GB Haddock	3,330.1	2,977.5	2,977.1	0.4		290.0			6.1	56.5
GOM Haddock	405.7	402.9	169.2	2.2	231.5	0.0			1.3	1.6
GB Yellowtail Flounder	93.3	55.8	55.8	0.0			37.5	2.5	0.0	0.0
SNE/MA Yellowtail Flounder	466.1	373.3	281.9	91.4			48.6		14.5	29.8
CC/GOM Yellowtail Flounder	453.1	380.5	376.5	4.1					42.8	29.7
Plaice	1,444.6	1,395.2	1,391.6	3.6					19.6	29.8
Witch Flounder	745.2	6423	638.9	3.4					27.1	75.8
GB Winter Flounder	1,763.1	1,722.0	1,722.0	0.0					0.0	41.0
GOM Winter Flounder	245.6	169.3	167.6	1.7					67.4	8.9
SNE/MA Winter Flounder	1,025.9	788.6	670.4	118.3					55.7	181.6
Redfish	4,023.5	4,000.6	3,996.2	4.4					19.0	3.9
White Hake	2,056.3	2,045.6	2,039.8	5.8					2.3	8.3
Pollock	7,029.1	4,915.0	4,878.4	36.5					981.7	1,132.4
Northern Windowpane	280.1	237.5	237.3	0.2					0.9	41.6
Southern Windowpane	554.7	115.9	86.0	30.0			129.1		37.3	272.4
Ocean Pout	59.3	33.2	27.3	5.9					1.5	24.6
Halibut	79.0	54.7	53.8	0.9					22.8	1.5
Wolffish	19.1	17.1	17.1	0.0					1.3	0.7

Notes: Catch includes any FY2012 carryover caught by sectors in FY2013. Data as of Oct. 20, 2014, Greater Atlantic Regional Office. Values for a non-allocated species may include landings of that stock; misreporting of species and/or stock area; and/or estimated landings (in lieu of missing reports) based on vessel histories.
*Recreational estimates based on Marine Recreational Information Program (MRIP) data.
**Landings extrapolated from observer data.

Table 53 - FY2013 Catches as percent of Catch Limit (%)

Stock	Components with ACLs and sub-ACLs (with accountability measures (AMs))								sub-components (No AMs)	
	Total Groundfish	Groundfish Fishery	Sector	Common Pool	Rec.*	Midwater Trawl Herring Fishery	Scallop Fishery	Small Mesh Fisheries	State Water	Other
GB Cod	84.8	87.0	86.8	101.0					46.0	42.8
GOM Cod	96.5	104.9	90.2	48.9	131.5				34.7	5.7
GB Haddock	11.9	11.4	11.4	0.5		106.2			2.1	4.8
GOM Haddock	147.9	154.4	91.2	108.9	312.2	-			30.4	25.3
GB Yellowtail Flounder	44.7	36.1	36.5	0.4			90.3	63.7	n/a	0.6
SNE Yellowtail Flounder	70.1	63.7	57.8	93.1			114.4		206.5	106.3
CC/GOM YTF	86.7	79.4	80.9	31.5					130.2	271.3
Plaice	97.5	98.3	99.8	14.3					63.0	95.7
Witch Flounder	99.2	105.3	106.6	30.6					115.5	64.5
GB Winter Flounder	48.4	48.8	49.1	0.0					n/a	36.5
GOM Winter Flounder	23.6	23.7	24.4	6.6					24.8	16.5
SNE/MA Winter Flounder	63.6	65.2	62.4	87.0					23.7	108.1
Redfish	38.5	39.5	39.6	10.9					17.3	1.8
White Hake	51.7	53.1	53.4	21.6					5.5	9.9
Pollock	47.1	38.1	38.1	40.2					104.9	103.7
Northern Windowpane	195.0	242.4	n/a	n/a					62.2	95.0
Southern Windowpane	105.3	113.7	n/a	n/a			70.5		67.9	146.4
Ocean Pout	26.9	16.9	n/a	n/a					62.9	116.4
Halibut	82.1	105.2	n/a	n/a					57.5	31.0
Wolffish	29.3	27.6	n/a	n/a					185.0	26.3

Notes: Data as of Oct. 20, 2014, Greater Atlantic Regional Office.
* To determine if recreational AM is triggered, the Regional Administrator must use the 3-year average catch compared to the 3-year average of the recreational sub-ACL for a stock.

Table 54 - FY2013 northeast multispecies Other-Subcomponent catch detail (metric tons, live weight)

Stock	Total Catch	Scallop[1]	Fluke	Hagfish	Herring	Lobster/ Crab	Menhaden	Monkfish	Research	Scup	Shrimp
GB Cod	34.2	4.9	0.3	0.0	1.4	0.8	0.3	0.2	14.5	0.1	0.0
GOM Cod	2.9	0.2	-	0.0	1.3	0.3	-	-	0.1	-	-
GB Haddock	56.5	3.5	0.1	0.0	5.2*	0.0	0.0	0.0	0.5	0.1	0.0
GOM Haddock	1.6	0.0	-	-	0.3*	-	-	-	0.0	-	-
GB Yellowtail Flounder	0.0	-*	-	-	-*	-	-	-	-	0.0	-
SNE Yellowtail Flounder	29.8	-*	5.7	-	1.3	0.0	0.0	0.0	1.3	5.6	0.0
CC/GOM Yellowtail Flounder	29.7	23.2	-	-	1.3	-	-	-	2.1	-	-
Plaice	29.8	13.5	0.7	-	1.3	0.0	0.0	0.0	0.8	0.8	0.0
Witch Flounder	75.8	26.7	5.7	0.0	3.3	0.1	0.1	0.0	0.6	4.7	0.0
GB Winter Flounder	41.0	25.0	-	-	1.5	-	-	-	-	0.1	-
GOM Winter Flounder	8.9	6.0	-	0.0	0.2	0.0	-	-	0.1	-	-
SNE Winter Flounder	181.6	78.2	10.8	-	4.7	0.0	0.1	0.0	19.9	9.7	0.0
Redfish	3.9	0.0	0.0	0.0	1.0	0.4	0.1	0.0	0.0	0.0	0.0
White Hake	8.3	1.0	0.1	0.0	2.0	1.0	0.3	0.1	0.1	0.2	0.0
Pollock	1,132.4	0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.1	0.0	0.0
Northern Windowpane	41.6	40.7	-	0.0	0.2	0.0	-	-	0.0	0.0	-
Southern Windowpane	272.4	-*	66.9	-	3.0	0.1	0.5	0.0	0.0	69.6	0.0
Ocean Pout	24.6	2.9	0.5	0.0	2.0	0.0	0.0	0.0	0.0	0.5	0.0
Halibut	1.5	0.2	0.0	0.0	0.1	0.6	0.0	0.0	0.0	0.0	0.0
Wolffish	0.7	0.5	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes: Data as of Oct. 20, 2014, Greater Atlantic Regional Office.
[1]Based on scallop fishing year March, 2013 through February, 2014.
2Some Canadian landings of this stock are included in the most recent assessment for Atlantic halibut (2010 Assessment Update). However, Canadian landings for 2013 have not yet been reported to the Northwest Atlantic Fisheries Organization, and as a result, are not included here.
*Some or all catch attributed to separate sub-ACL, so not included here.

Table 54– Cont.

Stock	Total Catch	Squid	Squid/ Whiting	Surfclam	Tilefish	Whelk/ Conch	Whiting	Unknown	Recreational
GB Cod	34.2	0.6	0.6	0.0	0.0	0.1	0.0	2.5	8.0
GOM Cod	2.9	-	0.2	-	-	0.0	0.4	0.5	-*
GB Haddock	56.5	14.8	15.5	0.0	0.0	0.0	0.0	16.7	-
GOM Haddock	1.6	-	0.3	-	-	-	0.5	0.5	-*
GB Yellowtail Flounder	0.0	-*	0.0*	-	-	-	-	0.0*	
SNE Yellowtail Flounder	29.8	2.0	2.2	-	-	-	0.0	11.7	
CC/GOM Yellowtail Flounder	29.7	-	0.6	-	-	-	1.3	1.3	
Plaice	29.8	3.6	3.9	-	-	-	0.1	5.1	
Witch Flounder	75.8	8.7	9.9	0.0	0.0	0.0	0.2	15.8	
GB Winter Flounder	41.0	0.5	12.7	-	-	-	-	1.3	
GOM Winter Flounder	8.9	-	0.1	-	-	0.0	0.2	2.3	0.1
SNE Winter Flounder	181.6	14.5	11.2	-	-	-	0.0	32.4	0.0
Redfish	3.9	0.6	0.7	0.0	0.0	0.0	0.0	0.9	
White Hake	8.3	0.6	1.3	0.0	0.0	0.1	0.0	1.5	
Pollock	1,132.4	1.0	1.0	0.0	0.0	0.0	0.0	1.3	1,128.0
Northern Windowpane	41.6	0.0	0.6	0.0	-	0.0	0.0	0.1	
Southern Windowpane	272.4	12.3	19.0	0.0	0.0	0.0	0.0	100.9	
Ocean Pout	24.6	5.6	5.9	0.0	0.0	0.0	0.1	6.9	
Halibut	1.5	0.1	0.2	0.0	0.0	0.0	0.0	0.3	
Wolffish	0.7	0.0	0.0	-	-	-	0.0	0.1	

6.5.9.2 Groundfish Landings and Revenue

Total groundfish landings on trips made by vessels possessing a limited access groundfish permit in FY2012 were 46.3M pounds, which is the lowest landings since at least FY2009 (Table 55, Table 56). Because only 16 groundfish stocks are limited by sector allocations, it is important to consider the landings of non-groundfish species and groundfish species separately as a means of describing any possible shift in effort to other fisheries. Non-groundfish landings made by limited access vessels increased from 178.1M pounds in FY2010 to 213.8M pounds in FY2011, and remained fairly steady at 212.0M pounds in FY2012. Total landings of all species made by limited access vessels in the Northeast multispecies fishery was 258.3M pounds in FY2012. This compares to landings ranging from 236.4M – 272.9M pounds in the 2009–2011 fishing years. In FY2012, sector vessels accounted for 68% of all landings, 99% of groundfish landings, and 62% of non-groundfish landings.

Groundfish revenues from vessels with limited access groundfish permits in FY2010, were $83.2M (Table 55, Table 56). This was slightly lower than FY2009 revenues. In FY2011, the groundfish revenues from vessels with limited access groundfish permits were $90.4M. Groundfish revenue in FY2012 decreased to a four-year low of $69.8 million (22.9% lower than in 2011). Non-groundfish revenue decreased to $235.7 million (2% lower than in FY2011), but was still higher than in FY2009 and FY2010. In FY2012, sector vessels accounted for about 69% of all revenue earned by limited access permitted vessels. Sector vessels also earned 99% of revenue from groundfish landings and 59% of non-groundfish revenue.

Table 55 - Total landings and revenue from all trips by fishing year

	FY2009	FY2010	FY2011	FY2012
Landed Pounds				
Groundfish	68,416,222	58,178,065	61,661,450	46,295,753
Non-Groundfish	185,631,323	174,269,060	211,226,012	211,983,492
Total Pounds	254,047,546	232,447,125	272,887,462	258,279,245
Gross Revenue				
Groundfish	$82,510,132	$83,177,330	$90,453,455	$69,778,174
(in 2010 dollars*)	($83,386,467)	($83,177,330)	($88,658,472)	($67,252,170)
Non-Groundfish	$180,396,477	$210,631,484	$240,364,488	$235,730,686
(in 2010 dollars*)	($182,312,457)	($210,631,484)	($235,594,629)	($227,197,123)
Total Revenue	$262,906,608	$293,808,814	$330,817,943	$305,508,860
(in 2010 dollars*)	($265,698,924)	($293,808,814)	($324,253,101)	($294,449,293)

Source: Murphy et al. (2014, Table 2). * Deflated by the CY2010 Q2 GDP Implicit Price Deflator.

Table 56 - Total landings and nominal revenue from groundfish trips by fishing year

	FY2009	FY2010	FY2011	FY2012
Landed Pounds				
Groundfish	68,362,567	58,067,026	61,520,629	46,238,230
Non-Groundfish	30,965,367	23,147,600	28,781,804	27,527,755
Total Pounds	99,327,934	81,214,627	90,302,433	73,765,985
Gross Revenue				
Groundfish	$82,456,833	$82,964,771	$90,237,532	$69,669,582
Non-Groundfish	$25,862,188	$22,339,660	$31,826,744	$25,768,848
Total Revenue	$108,319,021	$105,304,431	$122,064,276	$95,438,430

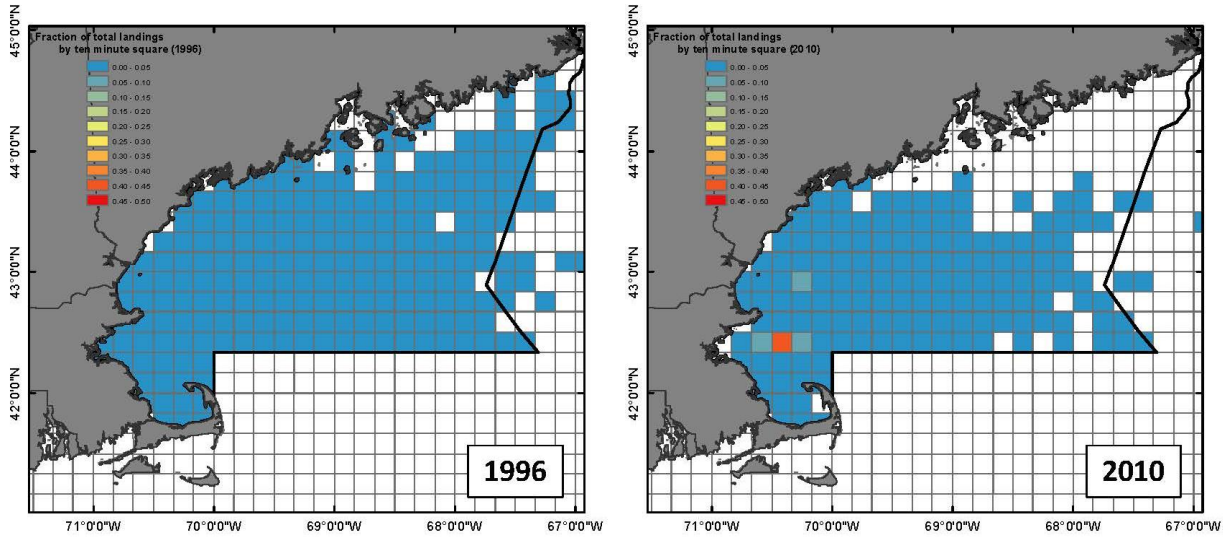
Source: Murphy et al. (2014, Table 3). * Deflated by the CY 2010 Q2 GDP Implicit Price Deflator.

6.5.9.3 Gulf of Maine Cod Landings and Effort

Measures are considered in this action that may create an inshore/offshore boundary within the GOM BSA (Figure 6) and create a sub-ACL and other measures specific to each sub-area.

Comparison of ten minute square landings patterns from the mid 1990's to the late 2000's show two noticeable patterns: (1) cod were being caught in fewer ten minute squares, particularly along coastal Maine, and (2) in the 1990's, landings were evenly distributed across the Gulf of Maine, whereas in the late 2000's, landings were dominated by only a few ten minute squares in the western Gulf of Maine (Figure 11) (NEFSC 2013a, p. 43).

Figure 11 - Comparison of the fraction of annual GOM cod landings per ten minute square in 1996 and 2010.



Source: NEFSC (2013a, p. 236).

The remainder of this section summarizes trends in landings and number of trips by vessel class in SRAs from 1994 to 2012 (NEFMC 2014c), particularly SRA 514. The data is from commercial fishing VTRs from FY1994-2012 and preliminary data from FY2013.

Trips. Total number of trips reporting keeping cod and fishing within the GOM in 2012 was approximately half of the total trips reported in 1994 (Table 57). Small vessels (30'-<50') accounted for the largest proportion (77%) of trips in the time series. Mid-size vessels (50'-<75') accounted for 21%, and the largest vessels (≥75') accounted for <3%. However, the proportions vary fishing years. The frequency of trips is not independent of fishing year and vessel class. Within SRA 514, the number of trips for small vessels decreased since FY 2010 (Figure 12). The number of trips for larger vessels was low from the late 1990s-2009 relative to the early and late years in the time series. This pattern likely developed in response to Frameworks 26 and 27, which were implemented in 1999 (Section 3.1.1). Since many of the management input control measures implemented prior to 2010 have been removed, it appears as if the proportion of trips by vessel class has returned to the pre-Framework 25 period (NEFMC 2014c).

Landings. Since 1994, there appears to have been increased landings of GOM cod in SRA 514 relative to other GOM areas (Figure 13). In 2010, nearly 77% of cod landings were taken in 514. This is well above the time series median of 45%. The small vessel category has landed the highest proportion of cod landings throughout the time series. The cause of the shift in

distribution of the landings is likely multi-factorial and includes a contraction in the distribution of cod as evidence in the NEFSC spring survey time series and consistent with distribution of cod as determined by the Industry Based cod survey (2003-2007). Other factors include effects from management actions that produced seasonal and year round closures within the GOM. Environmental conditions can also influence the distribution of cod and the distribution of fishing effort (NEFMC 2014c).

Table 57 - Number of trips in GOM that reported keeping cod by vessel class and the percent of trips by vessel class, 1994-2012

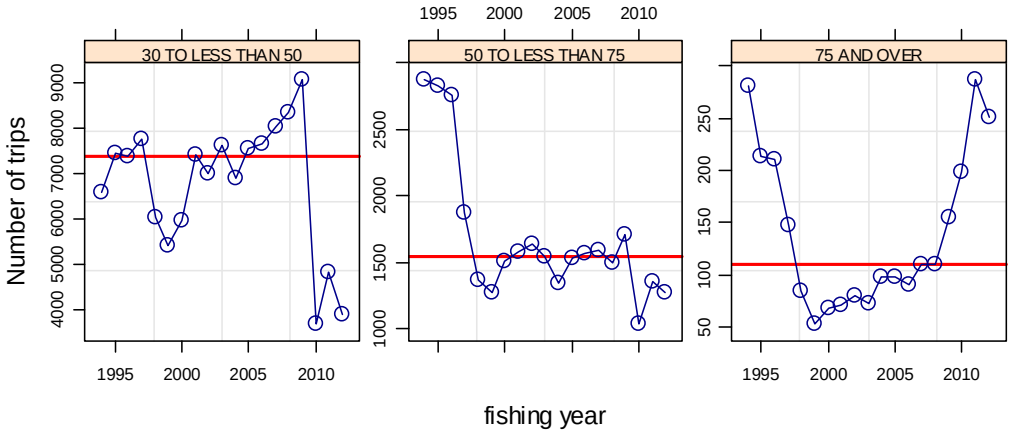
Fishing year	Number of trips				Percentage of total trips in fishing year		
	30' - <50'	50' - <75'	≥75'	Total	30' - <50'	50' - <75'	≥75'
1994	11,350	4,564	793	16,707	68%	27%	5%
1995	12,864	4,476	679	18,019	71%	25%	4%
1996	11,947	4,242	701	16,890	71%	25%	4%
1997	11,705	3,144	382	15,231	77%	21%	3%
1998	9,348	2,532	279	12,159	77%	21%	2%
1999	7,973	2,466	166	10,605	75%	23%	2%
2000	10,063	2,778	199	13,040	77%	21%	2%
2001	12,170	2,815	192	15,177	80%	19%	1%
2002	10,732	2,534	171	13,437	80%	19%	1%
2003	11,350	2,554	222	14,126	80%	18%	2%
2004	10,355	2,482	272	13,109	79%	19%	2%
2005	10,919	2,629	258	13,806	79%	19%	2%
2006	10,561	2,353	227	13,141	80%	18%	2%
2007	10,708	2,385	250	13,343	80%	18%	2%
2008	11,044	2,243	255	13,542	82%	17%	2%
2009	12,112	2,407	310	14,829	82%	16%	2%
2010	5,393	1,536	433	7,362	73%	21%	6%
2011	7,222	1,954	622	9,798	74%	20%	6%
2012	6,085	1,951	669	8,705	70%	22%	8%
Total	**193,901**	**52,045**	**7,080**	**253,026**	**77%**	**21%**	**<3%**

Source: NEFMC (2014c).

Catch Per Unit Effort. Mean cod kept per trip was relatively low in 1994 for all three vessel classes (Figure 14). As might be expected, larger vessels have higher catch per trip than smaller vessels. In 1994, the medium vessel class mean landings per trip was 1.15 times the small class. The largest vessel class mean landings per trip was 3.17 times the small class. Landings per trip has been generally higher since 1994 for all vessel classes, with a peak in 2009 for all vessel groups. The period of 1998 through 2009 marks an era of management via input controls. The larger size vessels have higher productivity, and measures such as trip limits became more constraining compared with smaller vessels with smaller production capacity. Sectors became exempt from DAS and trip limits in 2010. This allowed the largest vessels to utilize higher productivity to land more cod per trip in fishing years 2010 and 2011. Relative landings per trip declined for all vessel groups in 2012 (NEFMC 2014c).

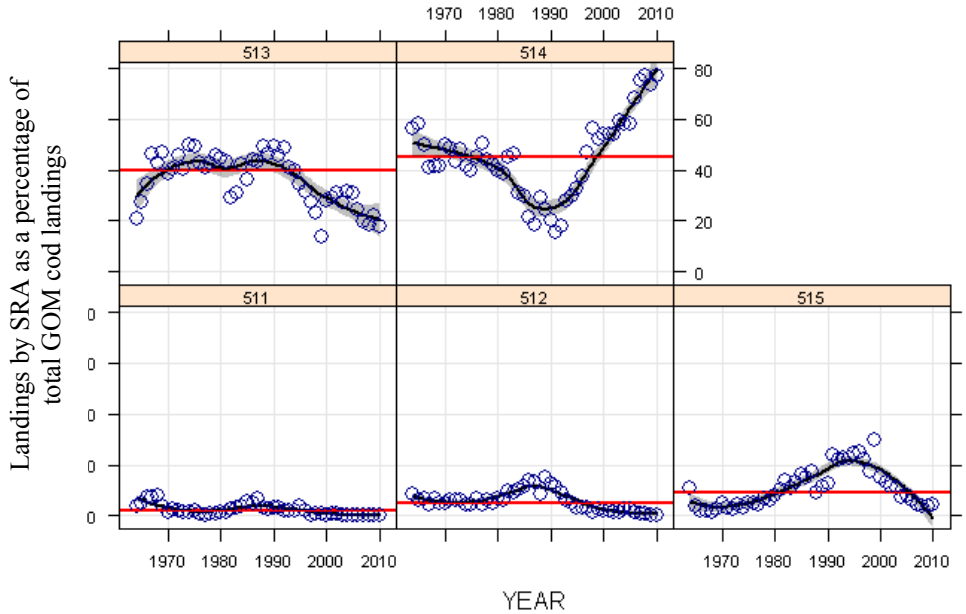
Mean cod landings relative to trends in SSB. Mean cod landings by vessel class were regressed on spawning stock biomass (SSB) from SARC (most recent) from 1994 – 2011 (Figure 15). The regressions were significant for the 30 to < 50' class (P<0.01) and the 50 to < 75 class (<0.001), but not for the 75+ class (P=0.064). This suggests that 1998-2009 management measures constrained production capacity of the large vessel class. These analyses indicate that the mean cod landing rates for two smaller vessel categories may be susceptible to decline in exploitable biomass. The precipitous drop in mean landings per trip for all three vessel classes in 2012 may be related to declining cod biomass as indicated in declines in various fishery independent trawl surveys and a series of poor year-classes (NEFMC 2014c).

Figure 12 - Number of trips landing cod from SRA 514 by vessel class, FY1994-2012.



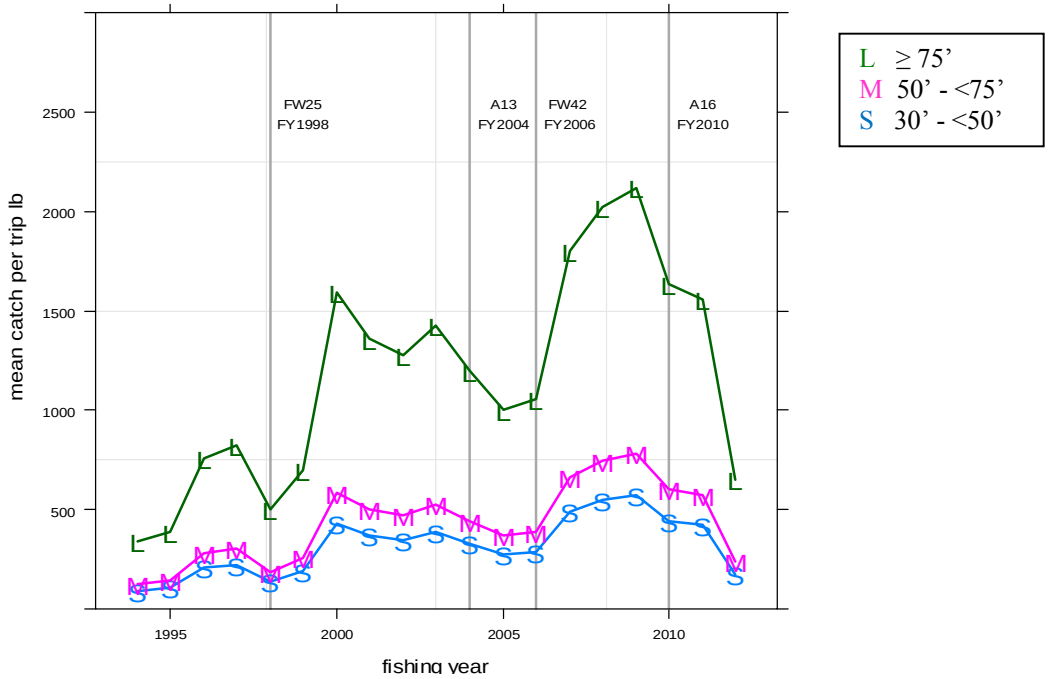
Note: Red line is time series median within vessel class. *Source:* NEFMC (2014c).

Figure 13 - Cod landings by SRA as a proportion of annual landings, CY1964-2010



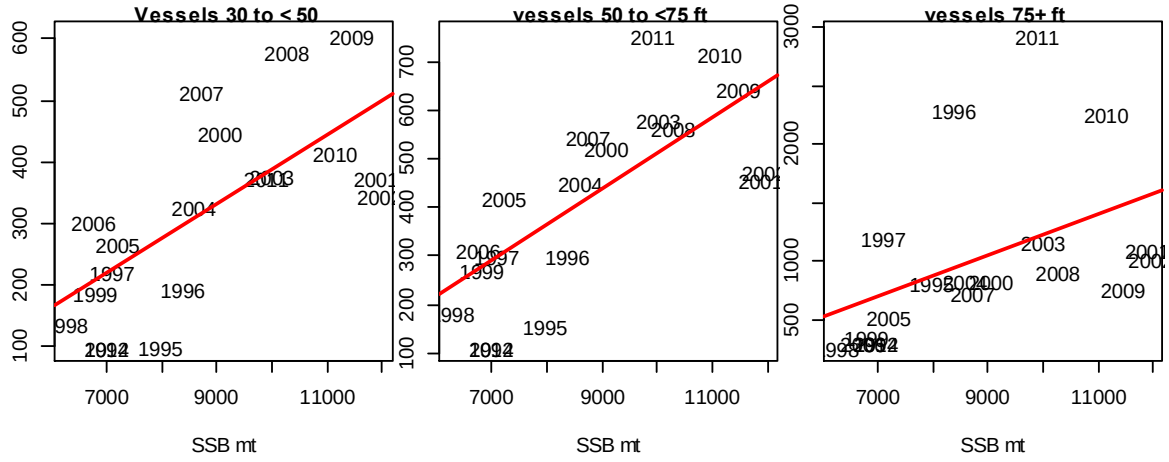
Note: Red line is time series median. Smooth black line is a general additive model. Gray polygon is the 95% confidence interval on the smooth fit. *Source:* NEFMC (2014c).

Figure 14 - Mean cod kept per trip by vessel category, FY1994-2012



Note: Mean based on back-transformed fitted values from the linear model conducted on log transformed data. Gray vertical lines represent approximate date of implementation of major groundfish management actions.
Source: NEFMC (2014c).

Figure 15 - Scatterplot of mean cod kept per trip against SSB by vessel class for trips within SRA 514, 1994-2011



Note: Red line is regression fit.
Source: NEFMC (2014c).

6.5.10 Groundfish Trade and Processing

6.5.10.1 Groundfish Dealers

All Federally permitted groundfish vessels are required to sell to a federally permitted dealer. Federally permitted dealers are required to report all purchases of seafood, regardless of whether the vessels held a Federal or state-waters only permit. Dealers may obtain product from many other sources, so the groundfish activity levels are likely to capture only a portion of business activity by seafood wholesalers. Given dealer reporting requirements, dealer records account for 99% of reported sales of groundfish in the Northeast region.

In most states, the number of dealers reporting purchases of groundfish is too small to report detailed statistics due to confidentiality restrictions. The states with sufficient numbers of participating dealers include Massachusetts, New York, New Jersey, and Rhode Island. The number of permits reported includes dealer permits issued to seafood auctions (e.g., Portland Fish Exchange, Whaling City Display Auction, Gloucester Fish Exchange, and New England Fish Exchange). Thus, the total number of entities involved in seafood wholesale trade is likely to be larger than what official dealer records may suggest.

Auctions function as clearinghouses, where member dealers purchase seafood, but do not necessarily possess a Federal dealer permit, since the auction itself is the dealer of record. Three of the four auction markets are located in Massachusetts while the Portland Fish Exchange in located in Maine. The Portland Fish Exchange accounts for nearly all of the groundfish purchased in Maine, while the auction markets in Massachusetts account for less than 40% of reported purchases. Including auction markets, seafood dealers in Massachusetts alone traditionally account for over 70% of the value of groundfish purchased, and the combined purchases by Maine and Massachusetts dealers accounted for over 90% of total groundfish purchased. A substantial proportion of groundfish have been purchased through the four auctions located in New England, averaging over 50% of total groundfish purchased.

Groundfish are also sold through cooperatives, such as the Yankee Fishermen's Cooperative in Seabrook, NH. Member fishermen can pool resources to increase bargaining and purchase power, market access and profitability. Cooperatives can participate in purchasing marketing, transportation, and fish processing.

6.5.10.2 Groundfish Processors

Studies of the processing sector suggest that it is less susceptible than the harvesting sector to fluctuations in the availability of domestic sources of wild-caught fish, as processors are able to find alternative sources of supply or use substitute species to maintain product lines (Dirlam & Georgianna 1994; Jin et al. 2005). This does not necessarily mean that all segments of the processing industry are readily able to find alternatives, as some processors may be more reliant on local sources of seafood to meet customer demand. Groundfish processors are located in communities such as New Bedford, Boston, Gloucester, Fall River, Melrose and Bourne MA; Portland, MM; and Wickford and Warwick, RI.

6.5.10.3 Community-Supported Fisheries

A community-supported fishery (CSF) is a program where fish consumers pre-pay and organization of member fishermen for a weekly or bi-weekly allotment of fish over the course of a season. Within the past few years, at least eight CSFs have formed throughout New England

by fishermen and their communities. Currently, there are CSFs based in Port Clyde and Portland, Maine; coastal New Hampshire; Gloucester, Scituate, and Chatham; Massachusetts; and Newport, Rhode Island. These are distributing fresh local product to surrounding communities (Local Catch 2014).

6.5.11 Recreational Harvesting Component

The recreational fishery includes private anglers, party boat operators, and charter vessel operators. Several groundfish stocks are targeted by the recreational fishery, including GOM cod, GOM haddock, pollock, and GOM winter flounder. GB cod and haddock are targeted as well, but to a lesser extent. SNE/MA winter flounder is also a target species. Amendment 16 (NEFMC 2009, Section 6.2.5) included a detailed overview of recreational fishing activity.

Recreational removals of GOM cod declined by 72% from FY2011 to FY2012, but then increased slightly in FY2013 (Table 58). Removals of GOM haddock were more equivalent through the time series. The number of angler trips also declined by about 30%. There were 122 active party or charter vessels catching cod or haddock in the Gulf of Maine in 2013, down from of 188-195 vessels between 2004-2010 (Table 58).

Table 58 - Recent recreational fishing activity for GOM cod and GOM haddock

	FY2011	FY2012	FY2013
Angler Trips	235,343	182,999	225,624
Cod Total Catch (numbers, a+b1+b2)	1,389,408	846,655	879,366
Cod Removals (numbers, a+b1+(0.3*b2)))	773,085	410,231	491,568
Cod Removals (weight, mt)	2,116	596	706
Haddock Total Catch (numbers, a+b1+b2)	184,709	369,427	654,227
Haddock Total removals (numbers, a+b1)	146,042	166,610	146,976
Haddock Total Removal (weight, mt)	231	211	256

Note: FY2013 catches are an estimate since not all data are available.

Table 59 - Recreational vessels catching cod or haddock from the Gulf of Maine

Calendar Year	Party	Charter	Total
1999	53	100	153
2000	48	103	151
2001	59	116	175
2002	43	130	173
2003	53	128	181
2004	64	124	188
2005	60	135	195
2006	62	126	188
2007	52	133	185
2008	54	128	182
2009	48	131	179
2010	60	135	195
2011	47	128	175
2012	44	108	152
2013	31	89	120

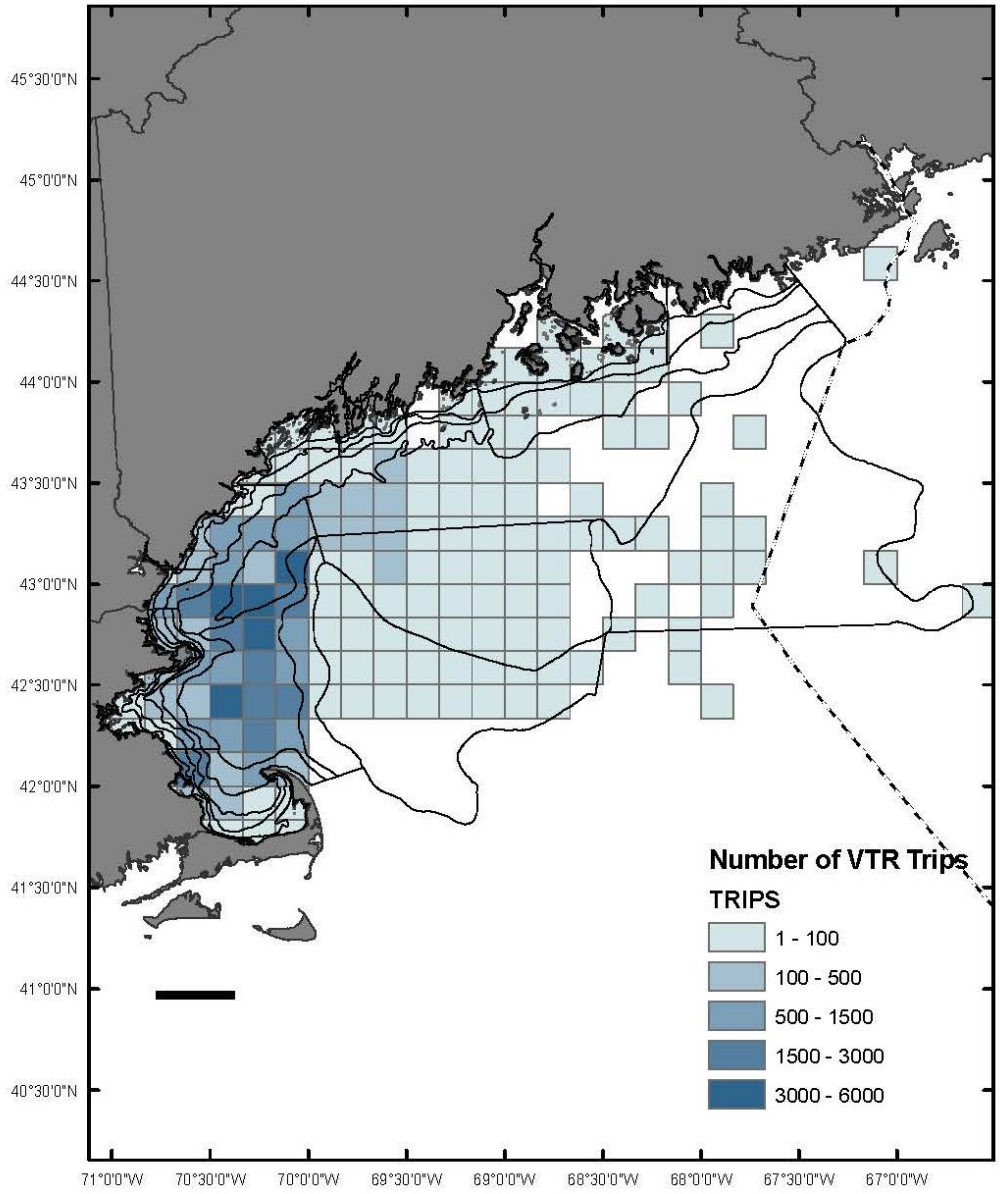
Notes: Includes catch (kept and discarded) from any of the Gulf of Maine statistical areas.

Source: GARFO, January 2014.

Measures are considered in this action that may create an inshore/offshore boundary within the GOM BSA (Figure 6) and create a sub-ACL and other measures specific to each sub-area.

Unlike the commercial trawl fishery, the recreational fishery has always been relatively concentrated in the western Gulf of Maine. There have been no large-scale changes in the center of recreational effort over time. The majority of VTR-reported recreational landings (by charter/party vessels) come almost exclusively from SRAs 513, 514, and 515, with most recreational activity located to the west of 70° W (Figure 16).

Figure 16 - Map of the distribution of recreational (party/charter) effort on trips reported catching GOM cod, 1994-2011.



Notes: VTR-based recreational effort is been binned to ten minute squares and overlaid on the NEFSC bottom trawl survey sampling strata.
Source: NEFSC (2013a, p. 273).

7.0 OPPORTUNITY FOR PUBLIC COMMENT

Opportunities for public comment have been provided at Advisory Panel, Committee, and Council meetings. In addition, a public comment period was held from December 21, 2011 through May 1, 2012. Comments were accepted via letter, facsimile, and email during that period. Table 60 lists the public meetings to date related to this action. Meeting discussion documents and summaries are available at www.nefmc.org.

Table 60 - Public meetings related to Amendment 18

Date	Meeting Type	Location
2010		
4/6/10	Interspecies Committee	
4/28/10	Council	Mystic Hilton, Mystic, CT
6/16/10	Groundfish Committee	Mansfield, MA
6/23/10	Council	Holiday Inn by the Bay, Portland, ME
9/9/10	Groundfish Committee	Holiday Inn, Mansfield, MA
2011		
1/10/11	GF PDT Meeting	MA Audubon, Newburyport, MA
1/19/11	Groundfish Committee	Clarion Hotel, Portland, ME
1/25-27/11	Council	Sheraton Harborside, Portsmouth, NH
3/17/11	Groundfish Committee	Crowne Plaza, Danvers, MA
4/18/11	Groundfish Committee	Holiday Inn, Mansfield, MA
4/26-28/11	Council	Mystic Hilton, Mystic, CT
6/9/11	Accumulation Limits Workshop	Crowne Plaza, Danvers, MA
6/21-23	Council	Holiday Inn by the Bay, Portland, ME
8/11/11	Groundfish Committee	Crowne Plaza, Danvers, MA
9/26-29/11	Council	Crowne Plaza, Danvers, MA
11/2/11	Groundfish Committee	Plymouth, MA
11/16/11	Council	Newport Marriott, Newport, RI
2012		
1/17/12	Amendment 18 Scoping Hearing	Ellsworth Town Hall, Ellsworth, ME
1/18/12	Amendment 18 Scoping Hearing	Holiday Inn by the Bay, Portland, ME
1/20/12	Amendment 18 Scoping Hearing	Seaport Inn, Fairhaven, MA
1/20/12	Amendment 18 Scoping Hearing	Holiday Inn, So. Kingstown, RI
1/23/12	Amendment 18 Scoping Hearing	Hotel Indigo, Riverhead, NY
1/24/12	Amendment 18 Scoping Hearing	Holiday Inn, Manahawkin, NJ
1/26/12	Amendment 18 Scoping Hearing	Holiday Inn, Hyannis, MA
1/26/12	Amendment 18 Scoping Hearing	Radisson Hotel, Plymouth, MA
1/30/12	Amendment 18 Scoping Hearing	MA DMF, Annisquam, MA
1/31/12	Amendment 18 Scoping Hearing	Sheraton Harborside, Portsmouth, NH
1/31/12-2/2/12	Council	Sheraton Harborside, Portsmouth, NH
6/19-6/21/12	Council	Holiday Inn by the Bay, Portland, ME
10/4/12	Groundfish Advisory Panel	Peabody, MA
11/5/12	Groundfish Committee	Portland, ME
11/13-15/12	Council	Newport Marriott, Newport, RI

Date	Meeting Type	Location
2013		
3/6/13	Joint Committee and Advisory Panel	Sheraton Colonial, Wakefield, MA
4/16-17/13	Groundfish Committee	Holiday Inn, Mansfield, MA
4/23-25/13	Council	Hilton Hotel, Mystic, CT
6/10/13	Groundfish Advisory Panel	Providence Biltmore, Providence, RI
6/12/13	Groundfish Committee	Providence Biltmore, Providence, RI
6/19/13	Council	Holiday Inn by the Bay, Portland, ME
8/14/13	Groundfish Committee	Holiday Inn, Peabody, MA
9/16/13	Groundfish Advisory Panel	Holiday Inn, Portsmouth, NH
9/17/13	Groundfish Committee	Holiday Inn, Portsmouth, NH
9/24-9/26/13	Council	Cape Codder Hotel, Hyannis, MA
10/30/13	Compass Lexecon Webinar	conference call
11/18-19/13	Groundfish Committee	Newport Marriott, Newport, RI
11/20/13	Council	Newport Marriott, Newport, RI
12/9/13	Groundfish Committee	Omni Hotel, Providence, RI
12/16-18/13	Council	DoubleTree Hilton, Danvers, MA
2014		
1/23/14	Groundfish Committee	DoubleTree Hilton, Danvers, MA
1/28-30/14	Council	Sheraton Harborside, Portsmouth, NH
3/28/14	Groundfish Committee	Omni Providence, Providence, RI
4/1/14	Groundfish Advisory Panel	Sheraton Colonial, Wakefield, MA
4/5/14	Groundfish Committee	Sheraton Colonial, Wakefield, MA
4/24/14	Council	Hilton Hotel, Mystic, CT
6/9/14	Groundfish Committee	Hampton Inn and Suites, Warwick, RI
6/18/14	Council	Holiday Inn by the Bay, Portland, ME
8/4/14	Groundfish Committee	Crowne Plaza, Danvers, MA
9/16/14	Recreational Advisory Panel	DoubleTree, Portland, ME
9/16/14	Groundfish Advisory Panel	DoubleTree, Portland, ME
9/17-18/14	Groundfish Committee	DoubleTree, Portland, ME
9/30-10/2/14	Council	Cape Codder, Hyannis, MA

8.0 REFERENCES

Abernathy A ed. 1989. Description of the Mid-Atlantic Environment. Herndon (VA): U.S. Department of the Interior, Minerals Management Service.

Almeida F. 1987. Stock definition of silver hake in the New England-Middle Atlantic area. North American Journal of Fisheries Management. 7: 169-186.

American Oceans Campaign et al. v. Daley et al. 2000. U.S. District Court, District of Columbia. Civil Action No. 99-CV-982.

Anderson L, Holliday M. 2007. The Design and Use of Limited Access Privilege Programs. Silver Spring (MD): Department of Commerce. NOAA Technical Memorandum NMFS-F/SPO-86. 165 p.

ASMFC. 2009. American Lobster Stock Assessment Report for Peer Review. Alexandria (VA): Atlantic States Marine Fisheries Commission. Stock Assessment Report No. 09-01 (Supplement).

ASSRT. 2007. Status Review of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) - Report of the Atlantic Sturgeon Status Review Team to NMFS. Gloucester (MA): U.S. Department of Commerce. 174 p.

Attard J, Hudon C. 1987. Embryonic development and energetic investment in egg production in relation to size of female lobster (*Homarus americanus*). Canadian Journal of Fisheries and Aquatic Sciences. 44: 1157-1164.

Backus RH. 1987. Georges Bank. Cambridge (MA): Massachusetts Institute of Technology Press. 593 p.

Bain MB, Haley N, Peterson D, Waldman JR, Arend K. 2000. Harvest and habitats of Atlantic sturgeon *Acipenser oxyrinchus* Mitchill, 1815, in the Hudson River Estuary: Lessons for sturgeon conservation. Instituto Espanol de Oceanografia Boletin. 16: 43-53.

Baumgartner MF, Cole TVN, Campbell GJ, Teegarden GJ, Durbin EG. 2003. Associations between North Atlantic right whales and their prey, *Calanus finmarchicus*, over diel and tidal time series. Marine Ecology Progress Series. 264: 155-166.

Baumgartner MF, Mate BR. 2003. Summertime foraging ecology of North Atlantic right whales. Marine Ecological Progress Series. 264: 123-135.

Beardsley RC, Butman B, Geyer WR, Smith P. 1996. Physical oceanography of the Gulf of Maine: An update. In: Proceedings of the Gulf of Maine Ecosystem Dynamics Scientific Symposium and Workshop. 97-1 ed.: Regional Association for Research in the Gulf of Maine. p. 39-52.

Blaxter JHS, Danielssen D, Moksness E, Oiestad V. 1983. Description of the early development of the halibut, *Hippoglossus hippoglossus* and attempts to rear the larvae past first feeding. Marine Biology. 73: 99-107.

Bolles K, Begg G. 2000. Distinction between silver hake (*Merluccius bilinearis*) stocks in U.S. waters of the Northwest Atlantic based on whole otolith morphometrics. Fisheries Bulletin. 98: 451-462.

Bolster WJ. 2008. Putting the ocean in Atlantic history: Maritime communities and marine ecology in the Northwest Atlantic, 1500-1800. American Historical Review. 19-47.

Braun-McNeill J, Epperly S. 2004. Spatial and temporal distribution of sea turtles in the western North Atlantic and the U.S. Gulf of Mexico from Marine Recreational Fishery Statistics Survey (MRFSS). Marine Fisheries Review. 64(4): 50-56.

Braun-McNeill J, Epperly SP, Avens L, Snover ML, Taylor JC. 2008. Life stage duration and variation in growth rates of loggerhead *(Caretta caretta)* sea turtles from the western north Atlantic. Herpetological Conservation and Biology. 3(2): 273-281.

Brodziak J, Holmes E, Sosebee K, Mayo R. 2001. Assessment of the Silver Hake Resource in the Northwest Atlantic in 2000. Woods Hole (MA): US Department of Commerce.

Brodziak J, Macy III W. 1996. Growth of long-finned squid, *Loligo pealeii*, in the northwest Atlantic. Fisheries Bulletin. 94: 212-236.

Brooks DA. 1996. Physical oceanography of the shelf and slope seas from Cape Hatteras to Georges Bank: A brief overview. In: The Northeast Shelf Ecosystem - Assessment, Sustainability, and Management. Cambridge (MA): Blackwell Science. p. 564.

Brown MW, Nichols OC, Marx MK, Ciano JN. 2002. Surveillance of North Atlantic Right Whales in Cape Cod Bay and Adjacent Waters - Final Report to the Division of Marine

Fisheries, Commonwealth of Massachusetts. Provincetown (MA): Provincetown Center for Coastal Studies. 29 p.

Census. State and County QuickFacts. US Census Bureau,; Available from: http://quickfacts.census.gov/qfd/index.html.

CeTAP. 1982. Final Report of the Cetacean and Turtle Assesment Program: A Characterization of Marine Mammals and Turtles in the Mid- and North-Atlantic Areas of the U.S. Outer Continental Shelf. Washington (DC): University of Rhode Island. AA511-CT8-48. 568 p.

Chang S, Berrien PL, Johnson DL, Morse WW. 1999. Essential Fish Habitat Source Document: Windowpane, *Scophthalmus aquosus*, Life History and Habitat Characteristics. Woods Hole (MA): U.S. Department of Commerce. NOAA Tech. Memo. NMFS-NE-137. 40 p.

Clapham PJ, Baraff LS, Carlson MA, Christian DK, Mattila CA, Mayo CA, Murphy MA, Pittman S. 1993. Seasonal occurrence and annual return of humpback whales, *Megaptera novaeangliae*, in the southern Gulf of Maine. Canadial Journal of Zoology. 71: 440-443.

Clark SH, Linvingstone R. 1982. Ocean pout, *Macrozoarces americanus*, fish distribution, Marine Ecosystem Analysis (MESA). New York Bight Atlas Monograph. 15: 76-79.

Clay PM, Colburn LL, Olson J, Pinto da Silva P, Smith SL, Westwood A, Ekstrom J. Community Profiles for the Northeast US Fisheries. August 22, 2012. Woods Hole (MA): Northeast Fisheries Science Center; Available from: http://www.nefsc.noaa.gov/read/socialsci/communityProfiles.html.

Cohen A. 1976. The systematics and distribution of Loligo (*Cephalopoda Myopsida*) in the western North Atlantic, with descriptions of two new species. Malacol. 15(2): 299-367.

Cole TVN, Hamilton P, Henry AG, Duley P, Pace III RM, White BN, Frasier T. 2013. Evidence of a North Atlantic right whale *Eubalaena glacialis* mating ground. Endangered Species Research. 21(55-64).

Coles WC, Musick JA. 2000. Sattellite sea surface temperature analysis and correlation with sea trutle distribution of North Carolina. Copeia. 2000: 551-554.

Collette BB, Klein-MacPhee G eds. 2002. Bigelow and Schroeder's Fishes of the Gulf of Maine. Washington (DC): Smithsonian Institution Press.

Collins MR, Smith TIJ. 1997. Distribution of shortnose and Atlantic sturgeons in South Carolina. North American Journal of Fisheries Management. 17: 995-1000.

Conservation Law Foundation v. Evans. 2001. U.S. District Court, District of Columbia. December 28, 2001. Civil Action No. 00-CV-1134 (GK).

Cook SK. 1988. Physical oceanography of the Middle Atlantic Bight. In: Characterization of the Middle Atlantic Water Management Unit of the Northeast Regional Action Plan.AL Pacheco ed. Woods Hole (MA): Department of Commerce. NOAA Technical Memorandum NMFS-F/NEC-56. 322 p.

Dadswell MJ. 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.

Dadswell MJ, Taubert BD, Squires TS, Marchette D, Buckley J. 1984. Synopsis of biological data on shortnose sturgeon, *Acipenser brevirostrum*. LeSuer. 1818.

Damon-Randall K, Colligan M, Crocker J. 2013. Composition of Atlantic Sturgeon in Rivers, Estuaries, and Marine Waters. Gloucester (MA). National Marine Fisheries Service/GARFO.

Dirlam J, Georgianna D. 1994. Recent adjustment in New England fresh fish processing. Marine Resource Economics. 9: 375-384.

Dodge KL, Galuardi B, Miller TJ, Lutcavage ME. 2014. Leatherback turtle movements, dive behavior, and habitat characteristics in ecoregions of the northwest Atlantic Ocean. PLoS ONE. 9(3 e91726): 1-17.

Dorsey EM. 1998. Geological overview of the sea floor of New England. In: Effects of Fishing Gear on the Sea Floor of New England.EM Dorsey, Pederson J eds. Cambridge (MA): MIT Sea Grant Publication. 98-4. 8-14 p.

Dovel WL, Berggren TJ. 1983. Atlantic sturgeon of the Hudson River Estuary, New York. New York Fish and Game Journal. 30: 140-172.

Dunton KJ, Jordaan A, McKown KA, Conover DO, Frisk MG. 2010. Abundance and distribution of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) within the Northwest Atlantic Ocean, determined from five fishery-independent surveys. Fishery Bulletin. 108: 450-465.

Epperly SP, Braun J, Chester AJ, Cross FA, Merriner JV, Tester PA. 1995. Winter distribution of sea turtles in the vicinity of Cape Hatteras and their interactions with the summer flounder trawl fishery. Bulletin of Marine Science. 56(2): 547-568.

Erickson DL, Kahnle A, Millard MJ, Mora EA, Bryja M, Higgs A, Mohler J, DuFour M, Kenney G, Sweka J, et al. 2011. Use of pop-up satellite archival tags to identify oceanic-migratory patterns for adult Atlantic sturgeon, *Acipenser oxyrinchus oxyrinchus*. Jounal of Applied Ichthyology. 27: 356-365.

Falk-Petersen IR, Hansen TK. 1991. Reproductive biology of wolffish *Anarhincas lupus* from north-Norwegian waters. ICES CM. G(14): 17.

Fay C, Barton M, Craig S, Hecht A, Pruden J, Saunders R, Sheehan T, Trial J. 2006. Status Review for Anadromous Atlantic Salmon (*Salmo salar*) in the United States - Report to the National Marine Fisheries Service and U.S. Fish and Wildlife Service. 294 p.

GAO. 2002. Individual Fishing Quotas: Better Information Could Improve Program Management. Washington (DC) GAO-03-159. 49 p.

Griffin DB, Murphy SR, Frick MG, Broderick AC, Coker JW, Coyne MS, Dodd MG, Godfrey MH, Godley BJ, Mawkes LA, et al. 2013. Foraging habitats and migration corridors utilized by a recovering subpopulation of adult female loggerhead sea turtles: Implications for conservation. Marine Biology. 160: 3071-3086.

Grosslein MD, Azarovitz TR. 1982. Fish distribution, Marine Ecosystem Analysis (MESA). In: New York Bight Atlas Monograph.Vol. 15. Albany (NY): NYSG Institute.

Hain JHW, Ratnaswamy MJ, Kenney RD, Winn HE. 1992. The fin whale, *Balaenoptera physalus,* in waters of the northeastern United States continental shelf. Reports of the International Whaling Commission. 42: 653-669.

Hamilton PK, Mayo CA. 1990. Population characteristics of right whales (*Eubalaena glacialis*) observed in Cape Cod and Massachusetts Bays, 1978-1986. Reports of the International Whaling Commission. 12: 203-208.

Hart DR, Chute AS. 2004. Essential Fish Habitat Source Document: Sea Scallop, *Placopecten magellanicus*, Life History and Habitat Characteristics 2nd ed. Woods Hole (MA): US Department of Commerce. Northeast Fisheries Science Center Tech. Memo. NE-198.

Haug T, Gulliksen B. 1988. Fecundity and oocyte sizes in ovaries of female Atlantic halibut, *Hippoglossus hippoglossus* (L.). Sarsia. 73: 259-261.

Jacobson L. 2005. Essential fish habitat source document: longfin inshore squid, Loligo pealeii, life history and habitat characteristics.2nd ed. Woods Hole (MA): U.S. Department of Commerce. NOAA Tech. Memo. NMFS-NE-193. 42 p.

James M, Myers R, Ottenmeyer C. 2005. Behaviour of leatherback sea turtles, *Dermochelys coriacea*, during the migratory cycle. Proceedings of the Royal Society of Biological Sciences. 272(1572): 1547-1555.

James MC, Sherrill-Mix SA, Martin K, Myers RA. 2006. Canadian waters provide critical foraging habitat for leatherback sea turtles. Biological Conservation. 133: 347-357.

Jefferson TA, D. F, Bolanos-Jimenez J, Zerbini AN. 2009. Distribution of common dolphins (*Delphinus sp.*) in the western North Atlantic: A critical re-examination. Marine Biology. 156: 1109-1124.

Jin D, Hoagland P, Thunberg E. 2005. An analysis of the relationship between fish harvesting and processing sectors in New England. Marine Resource Economics. 21: 47-62.

Keats DW, South GR, Steele DH. 1985. Reproduction and egg guarding of Atlantic wolffish (*Anarhichas lupus*: Anarhichidae) and ocean pout (*Macrozoarces americanus*: Zoarcidae) in Newfoundland waters. Canadian Journal of Zoology. 63: 2565-2568.

Kelley JT. 1998. Mapping the surficial geology of the western Gulf of Maine. In: Effects of Fishing Gear on the Sea Floor of New England.EM Dorsey, Pederson J eds. Cambridge (MA): MIT Sea Grant Publication. 98-4. 15-19 p.

Kenney RD. 2001. Anomalous 1992 spring and summer right whale (*Eubalaena glacialis*) distribution in the Gulf of Maine. Journal of Cetacean Research and Management. 2: 209-223.

Kenney RD, Hyman MAM, Owen RE, Scott GP, Winn HE. 1986. Estimation of prey densities required by western North Atlantic right whales. Marine Mammal Science. 2: 1-13.

Kenney RD, Winn HE, Macaulay MC. 1995. Cetaceans in the Great South Channel, 1979-1989: right whale (*Eubalaena glacialis*). Continental Shelf Research. 15: 385-414.

Khan C, Cole TVN, Duley P, Glass A, Gatzke. 2010. North Atlantic Right Whale Sightings Survey (NARWSS) and Right Whale Sighting Advisory System (NARWSS) 2009 Results Summary. Woods Hole (MA): U.S. Department of Commerce. 10-07. 7 p.

Khan C, Cole TVN, Duley P, Glass A, Gatzke. 2011. North Atlantic Right Whale Sightings Survey (NARWSS) and Right Whale Sighting Advisory System (NARWSS) 2010 Results Summary. Woods Hole (MA): U.S. Department of Commerce. 11-05. 6 p.

Khan C, Cole TVN, Duley P, Glass A, Gatzke. 2012. North Atlantic Right Whale Sightings Survey (NARWSS) and Right Whale Sighting Advisory System (NARWSS) 2011 Results Summary. Woods Hole (MA): U.S. Department of Commerce. 12-09. 6 p.

Khan C, Cole TVN, Duley P, Glass A, Niemeyer M, Christman C. 2009. North Atlantic Right Whale Sightings Survey (NARWSS) and Right Whale Sighting Advisory System (NARWSS) 2008 Results Summary. Woods Hole (MA): U.S. Department of Commerce. NEFSC Reference Document 09-05. 7 p.

Kitts A, Bing-Sawyer E, McPherson M, Olson J, Walden J. 2011. Report for Fishing Year 2010 on the Performance of the Northeast Multispecies (Groundfish) Fishery (May 2010 - April 2011). December 2011. Woods Hole (MA): NOAA Fisheries Northeast Fisheries Science Center. 11-12. 44 p.

Kovach AI, Breton TS, Berlinsky DL, Maceda L, Wirgin II. 2010. Fine-scale spatial and temporal genetic structure of Atlantic cod off the Atlantic coast of the USA. Marine Ecology Progress Series. 410: 177-195.

Kynard B, Horgan M, Kieffer M, Seibel D. 2000. Habitat use by shortnose sturgeon in two Massachusetts rivers, with notes on estuarine Atlantic sturgeon: A hierarchical approach. Transactions of the American Fisheries Society. 129: 487-503.

Laney RW, J.E. H, Versak BR, Mangold MF, Cole Jr. WW, Winslow SE. 2007. Distribution, habitat use, and size of Atlantic sturgeon captured during cooperative winter tagging cruises, 1988–2006. In: Anadromous sturgeons: Habitats, threats, and management. Bethesda (MD): American Fisheries Society Symposium,.

Legault CM, Alade L, Stone HH, Gross WE. 2012. Stock Assessment of Georges Bank Yellowtail Flounder for 2012. Woods Hole (MA) and St. Andrews (NB): Transboundary Resources Assessment Committee. Ref. Doc. 2012/02. 138 p.

Local Catch. Local Catch.org A Network of Community Supported Fisheries. Available from: http://www.localcatch.org/index.html.

Lock M, Packer D. 2004. Essential Fish Habitat Source Document: Silver Hake, *Merluccius bilinearis*, Life History and Habitat Characteristics.2nd ed. Woods Hole (MA): National Marine Fisheries Service. NOAA Technical Memorandum NMFS-NE-186.

Lovgren, J. et al. vs. Locke, G. et al. 2012. United States Court of Appeals for the First Circuit. 11-1952.

MAFMC. 1998. Amendment 12 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan. Dover (DE): Mid-Atlantic Fishery Management Council and the ASMFC in cooperation with the NMFS the NEFMC and the SAFMC. 496 p.

Mansfield KL, Saba VS, Keinath J, Mauick JA. 2009. Satellite telemetry reveals a dichotomy in migration strategies among juvenile loggerhead sea turtles in the northwest Atlantic. Marine Biology. 156: 2555-2570.

Mayo CA, Marx MK. 1990. Surface foraging behaviour of the North Atlantic right whale, *Eubalaena glacialis*, and associated zooplankton characteristics. Canadian Journal of Zoology. 68: 2214-2220.

Mercer S, Brown GE, Clearwater S, Yao Z. 1993. Observations of the copulatory bahavior of the ocean pout, *Macrozoarces americanus*. Canadian Field-Naturalist. 107: 243-244.

Methven DA, Brown JA. 1991. Time of hatching affects development, size, yolk volume and mortality of newly hatched *Macrozoarces americanus* (Pisces: *Zoarcidae*). Canadian Journal of Zoology. 69(8): 2161-2167.

Miller JM, Burke JS, Fitzhugh GR. 1991. Early life history patterns of Atlantic North American flatfish: Likely (and unlikely) factors controlling recruitment. Netherland Journal of Sea Research. 27: 261-275.

Mitchell G, Peterson S. 2013. Recommendations for Excessive-Share Limits in the Northeast Multispecies Fishery. December 31, 2013. Pasadena (CA): Compass Lexecon. 60 p.

Moore E. 1947. Studies on the marine resources of southern New England. VI. The sand flounder, *Lophopsetta aquosa* (Mitchill): a general study of the species with special emphasis on age determination by means of scales and otoliths. Bulletin of the Bingham Oceanographic Collection. 11(3): 1-79.

Morreale S, Standora E. 2005. Western North Atlantic waters: Crucial developmental habitat for Kemp's ridley and loggerhead sea turtles. Chelonean Conservation and Biology. 4(4): 872-882.

Morreale SJ. 1999. Oceanic Migrations of Sea Turtles - A Dissertation Presented to the Faculty of the Graduate School Ithaca (NY): Cornell University.

Morse WW, Able KW. 1995. Distribution and life history of windowpane, Scophthalmus aquosos, off the Northeastern United States. Fishery Bulletin. 93: 674-693.

Mountain DG, Langton RW, Watling L. 1994. Oceanic processes and benthic substrates: Influences on demersal fish habitats and benthic communities. In: Selected Living

Resources, Habitat Conditions, and Human Perterbations of the Gulf of Maine: Environmental and Ecological Considerations for Fishery Management.RW Langton, Pearce JB, Gibson JA eds. Woods Hole (MA): Department of Commerce. NOAA Technical Memorandum NMFS-NE-106. 20-25 p.

MSFCMA. Magnuson-Stevens Fishery Conservation and Management Reauthorization Act. 2007. Public Law 109-479, 16 USC 1801-1884.

Murphy T, Kitts A, Records D, Demarest C, Caless D, Walden J, Benjamin S. 2014. 2012 Final Report on the Performance of the Northeast Multispecies (Groundfish) Fishery (May 2012-April 2013). January 2014. Woods Hole (MA): NOAA Fisheries Northeast Fisheries Science Center. 14-01. 121 p.

Murphy T, Kitts A, Records D, Demarest C, McPherson M, Walden J, Caless D, Bing-Sawyer E, Steinback S, Olson J. 2012a. 2011 Final Report on the Performance of the Northeast Multispecies (Groundfish) Fishery (May 2011-April 2012). December 2012. Woods Hole (MA): NOAA Fisheries Northeast Fisheries Science Center. 12-30. 111 p.

Murphy T, Kitts A, Records D, Demarest C, McPherson M, Walden J, Caless D, Bing-Sawyer E, Steinback S, Olson J. 2012b. 2011 Final Report on the Performance of the Northeast Multispecies (Groundfish) Fishery (May 2011-April 2012). December 2012. Woods Hole (MA): NOAA Fisheries Northeast Fisheries Science Center. 12-30. 1111 p.

Murray KT. 2009. Characteristics and magnitude of sea turtle bycatch in U.S. Mid-Atlantic gillnet gear. Endangered Species Research. 8: 211-224.

Murray KT, Orphanides CD. 2013. Estimating the risk of loggerhead turtle *Caretta caretta* bycatch in the U.S. Mid-Atlantic using fishery-independent and -dependent data. Marine Ecological Progress Series. 477: 259-270.

NDPSWG. 2009. The Northeast Data Poor Stocks Working Group Report, December 8-12, 2008 Meeting. Part A. Skate Species Complex, Deep Sea Red Crab, Atlantic Wolffish, Scup, and Black Sea Bass. Woods Hole (MA): US Department of Commerce. Northeast Fisheries Science Center Ref. Doc. 09-02. 496 p.

NEFMC. 1993. Amendment 5 to the Multispecies Fishery Management Plan. Newburyport (MA): New England Fishery Managment Council. 366 p.

NEFMC. 1997. Amendment 7 to the Northeast Multispecies Fishery Management Plan. Newburyport, MA 1-239 p.

NEFMC. 1998a. Final Amendment #11 to the Northeast Multispecies Fishery Management Plan, #9 to the Atlantic Sea Scallop Fishery Management Plan, Amendment #1 to the Monkfish Fishery Management Plan, Amendment #1 to the Atlantic Salmon Fishery Management Plan, and components of the proposed Atlantic Herring Fishery Management Plan for Essential Fish Habitat, incorporating the Environmental Assessment. Newburyport (MA): New England Fishery Management Council. 388 p.

NEFMC. 1998b. Monkfish Fishery Management Plan. Saugus (MA): New England and Mid-Atlantic Fishery Management Councils. 480 p.

NEFMC. 1999. Amendment 10 to the Northeast Multispecies Fishery Management Plan (Omnibus Amendment). Gloucester (MA): National Marine Fisheries Service in concultation with the MAFMC and NEFMC. 36 p.

NEFMC. 2003. Fishery Management Plan for the Northeast Skate Complex including Final Environmental Impact Assessment and an Initial Regulatory Flexibility Analysis. Newburyport (MA): New England Fishery Management Council and National Marine Fisheries Service. 443 p.

NEFMC. 2009. Amendment 16 to the Northeast Multispecies Fishery Management Plan Including an Environmental Impact Statement and Initial Regulatory Flexibility Analysis. Newburyport (MA) 1-905 p.

NEFMC. 2010. Framework Adjustment 44 to the Northeast Multispecies Fishery Management Plan. Newburyport (MA): New England Fishery Management Council. 306 p.

NEFMC. New England Fishery Management Council [Internet]. Newburyport (MA); Available from: www.nefmc.org.

NEFMC. 2013a. Framework 50 to the Northeast Multispecies Fishery Management Plan. Newburyport (MA): New England Fishery Management Council.

NEFMC. 2013b. Groundfish Plan Development Team memo to the Groundfish Oversight Committee re Groundfish Permit Banks. June 3, 2013. Newburyport (MA): New England Fishery Management Council. 36 p.

NEFMC. 2014a. Framework 51 to the Northeast Multispecies Fishery Management Plan. Newburyport (MA): NEFM Council. 318 p.

NEFMC. 2014b. Framework Adjustment 3 to the Atlantic Herring Fishery Managment Plan. Newburyport (MA): New England Fishery Management Council. 241 p.

NEFMC. 2014c. Groundfish Plan Development Team Memo to the Groundfish Oversight Committee re. Gulf of Maine Cod in Statistical Reporting Area 514. April 16, 2014. Newburyport (MA): New England Fishery Management Council. 17 p.

NEFSC. 2008a. 47th Northeast Regional Stock Assessment Workshop (47th SAW) Assessment Summary Report. Woods Hole (MA): US Department of Commerce. Northeast Fisheries Science Center Ref. Doc. 08-11. 22 p.

NEFSC. 2008b. Assessment of 19 Northeast Groundfish Stocks Through 2007: Report of the 3rd Groundfish Assessment Review Meeting (GARM III), August 4-8, 2008. Woods Hole (MA): US Department of Commerce. 884 p.

NEFSC. 2010. 50th Northeast Regional Stock Assessment Workshop (50th SAW) Assessment Summary Report. Woods Hole (MA): US Department of Commerce. Northeast Fisheries Science Center Ref. Doc. 10-09. 57 p.

NEFSC. 2011a. 52nd Northeast Regional Stock Assessment Workshop (52nd SAW) Assessment Summary Report.: US Department of Commerce. Northeast Fisheries Science Center Ref. Doc. 11-11. 51 p.

NEFSC. EFH Source Documents: Life History and Habitat Characteristics. Woods Hole (MA): US Department of Commerce; Available from: http://www.nefsc.noaa.gov/nefsc/habitat/efh/.

NEFSC. 2012a. 54th Northeast Regional Stock Assessment Workshop (54th SAW) Assessment Summary Report. Woods Hole (MA): US Department of Commerce. Northeast Fisheries Science Center Ref. Doc. 12-14. 45 p.

NEFSC. 2012b. Assessment or Data Updates of 13 Northeast Groundfish Stocks through 2010. Woods Hole (MA): US Department of Commerce. Northeast Fisheries Science Center Ref. Doc. 12-06. 789 p.

NEFSC. Social Sciences Branch [Internet]. 2012. Woods Hole (MA): NMFS Northeast Fisheries Science Center; Available from: http://www.nefsc.noaa.gov/read/socialsci/index.html.

NEFSC. 2013a. 55th Northeast Regional Stock Assessment Workshop (55th SAW) Assessment Report. Woods Hole (MA): US Department of Commerce. Northeast Fisheries Science Center Ref. Doc. 13-11. 845 p.

NEFSC. 2013b. 55th Northeast Regional Stock Assessment Workshop (55th SAW) Assessment Summary Report. Woods Hole (MA): US Department of Commerce. Northeast Fisheries Science Center Ref. Doc. 13-01. 47 p.

NEFSC. 2013c. 56th Northeast Regional Stock Assessment Workshop (56th SAW) Assessment Summary Report. Woods Hole (MA): U.S. Department of Commerce. Northeast Fisheries Science Center Ref. Doc. 13-04. 42 p.

NEFSC. SAW and SARC Reports: 2004-present. Woods Hole (MA): US Department of Commerce; Available from: http://www.nefsc.noaa.gov/saw/reports.html.

NEFSC. Social Sciences Branch [Internet]. 2012. Woods Hole (MA): NMFS Northeast Fisheries Science Center; Available from: http://www.nefsc.noaa.gov/read/socialsci/index.html.

NEFSC. Status of Fishery Resources off the Northeast US. Woods Hole (MA): US Department of Commerce; Available from: http://www.nefsc.noaa.gov/sos/.

NEFSC. 2014. 59th Northeast Regional Stock Assessment Workshop (59th SAW) Assessment Report. Woods Hole (MA): U.S. Department of Commerce. Northeast Fisheries Science Center Ref. Doc. 14-09. 782 p.

Neilson JD, Kearney JF, Perley P, Sampson H. 1993. Reproductive biology of Atlantic halibut (*Hippoglossus hippoglossus*) in Canadian waters. Canadian Journal of Fisheries and Aquatic Sciences. 50: 551-563.

Nelson GA, Ross MR. 1992. Distribution, growth and food habits of the Atlantic wolffish (*Anarhichas lupus*) from the Gulf of Maine-Georges Bank region. Journal of Northwest Atlantic Fisheries Science. 13: 53-61.

NEPA. National Environmental Policy Act. 1970. Public Law 91-190: 852-859 and as amended Public Law 94-52 and 94-83, 42 USC.

Neuman MJ, Witting DA, Able KW. 2001. Relationships between otolith microstructure, otolith growth, somatic growth and ontogenetic transitions in two cohorts of windowpane. Journal of Fish Biology. 58: 967-984.

NMFS. 1991. Final Recovery Plan for the Humpback Whale (*Megaptera novaeangliae*). Silver Spring (MD): US Department of Commerce. 105 p.

NMFS. 2005. Recovery Plan for the North Atlantic Right Whale (*Eubalaena glacialis*). Silver Spring (MD): US Department of Commerce. 137 p.

NMFS. 2009a. Fisheries of the Northeastern United States; Northeast Multispecies Fishery; Secretarial Interim Action. Federal Register. 74(69): 17030-17065.

NMFS. 2009b. NMFS National Standards Guidelines. 50 CFR 600310 et seq.

NMFS. 2010a. Biological Assessment of Shortnose Sturgeon (*Acipenser brevirostrum*) - Prepared by the Shortnose Sturgeon Status Review Team for the National Marine Fisheries Service. 417 p.

NMFS. 2010b. Final recovery plan for the fin whale *(Balaenoptera physalus)*. Silver Spring (MD): US Department of Commerce. 121 p.

NMFS. 2010c. How is the Potential Sector Contribution Calculated? Gloucester (MA): National Marine Fisheries Service Fisheries Statistics Office. 11 p.

NMFS. Interactive Fisheries Economic Impacts Tool. Woods Hole (MA): National Marine Fisheries Service; Available from: https://www.st.nmfs.noaa.gov/pls/apex32/f?p=160:7:3415449084930703.

NMFS. 2011a. Final recovery plan for the sei whale *(Balaenoptera borealis)*. Silver Spring (MD): US Department of Commerce. 108 p.

NMFS. 2011b. New England Fishery Management Council; Notice of Intent To Prepare an Environmental Impact Statement (EIS); Northeast Multispecies Fishery; Notice of Public Scoping Meetings. Federal Register. 76(245): 79153-79155.

NMFS. 2012a. New England Fishery Management Council; Notice of Intent To Prepare an Environmental Impact Statement (EIS); Northeast Multispecies Fishery; Notice of Public Scoping Meetings; Correction. Federal Register. 77(34): 9899.

NMFS. 2012b. North Atlantic Right Whale *(Eubalaena glacialis)* five year review: Summary and evaluation. Gloucester (MA): US Department of Commerce. 36 p.

NMFS. 2013a. Endangered Species Act Section 7 Consultation on the Continued Implementation of Management Measures for the Northeast Multispecies, Monkfish, Spiny Dogfish, Atlantic Bluefish, Northeast Skate Complex, Mackerel/Squid/Butterfish, and Summer Flounder/Scup/Black Sea Bass Fisheries. http://www.greateratlantic.fisheries.noaa.gov/protected/section7/bo/actbiops/batchedfisheriesopinionfinal121613.pdf.

NMFS. 2013b. Fisheries of the Northeastern United States; Northeast Multispecies Fishery, Trip Limit Adjustments for the Common Pool Fishery. Federal Register. 78(170): 54194-54195.

NMFS. 2013c. Fisheries of the Northeastern United States; Northeast Multispecies Fishery, Trip Limit Adjustments for the Common Pool Fishery. Federal Register. 78(136): 42478-42479.

NMFS. 2014. Final Environmental Impact Statement for Amending the Atlantic Large Whale Take Reduction Plan: Vertical Line Rule. Gloucester (MA): Department of Commerce.

NMFS, USFWS. 1991. Recovery Plan for U.S. Population of Atlantic Green Turtle *(Chelonia mydas)*. Washington (DC): US Department of Commerce and US Department of the Interior. 58 p.

NMFS, USFWS. 1992a. Recovery Plan for Kemp's ridley sea turtle *(Lepidochelys kempii)*. Washington (DC): National Marine Fisheries Service. 40 p.

NMFS, USFWS. 1992b. Recovery Plan for Leatherback Turtles in the U.S. Caribbean, Atlantic and Gulf of Mexico. Silver Spring (MD): US Department of Commerce and US Department of the Interior. 65 p.

NMFS, USFWS. 1993. Recovery plan for the Hawsbill turtle (*Eretmochelys imbricate*) in the U.S. Caribbean, Atlantic, and Gulf of Mexico. Washington (DC): National Marine Fisheries Service. 58 p.

NMFS, USFWS. 2005. Recovery Plan for the Gulf of Maine Distinct Population Segment of the Atlantic Salmon (*Salmo salar*). Silver Spring (MD): National Marine Fisheries Service.

NMFS, USFWS. 2007a. Green Sea Turtle (*Chelonia mydas*) 5 Year Review: Summary and Evaluation. Silver Spring (MD): US Department of Commerce and US Department of the Interior. 102 p.

NMFS, USFWS. 2007b. Kemp's Ridley Sea Turtle (*Lepidochelys kempii*) 5 Year Review: Summary and Evaluation. Silver Spring (MD): US Department of Commerce and US Department of the Interior. 50 p.

NMFS, USFWS. 2007c. Leatherback Sea Turtle (*Dermochelys coriacea*) 5 Year Review: Summary and Evaluation. Silver Spring (MD): US Department of Commerce and US Department of the Interior. 79 p.

NMFS, USFWS. 2007d. Loggerhead Sea Turtle (*Caretta caretta*) 5 Year Review: Summary and Evaluation. Silver Spring (MD): US Department of Commerce and US Department of the Interior. 65 p.

NMFS, USFWS. 2009. National Recovery Plan for the Loggerhead Sea Turtle *(Caretta caretta)*.2nd ed. Siver Spring (MD): National Marine Fisheries Service. 325 p.

NMFS, USFWS. 2011. Bi-national Recovery Plan for the Kemp's Ridley Sea Turtle *(Lepidochelys kempii)*.2nd ed. Siver Spring (MD): NMF Service. 156 & appendices p.

NOAA. 2006. Magnuson-Stevens Fishery Conservation and Management Act Provisions; Fisheries of the Northeastern United States; Northeast (NE) Multispecies Fishery; Framework Adjustment 42; Monkfish Fishery, Framework Adjustment 3. In: Federal Register.Vol. 71 Washington, DC 62156-62196 p.

NOAA. 2007. An Assessment of the Leatherback Turtle Population in the Atlantic Ocean - A Report of the Turtle Expert Working Group. Miami (FL): US Department of Commerce. NOAA Tech Memo NMFS-SEFSC-555. 116 p.

NOAA. 2008. High numbers of right whales seen in Gulf of Maine: NOAA researchers identify wintering ground and potential breeding ground. US Department of Commerce. NOAA press release. December 31, 2008.

NOAA. 2010. NOAA Catch Share Policy.National Oceanic and Atmospheric Administration ed. 25 p.

O'Brein L, Burnett J, Mayo RK. 1993. Maturation of 19 species of finfish off the northeast coast of the United States, 1985-1990. US Department of Commerce. NOAA Tech. Report NMFS 113. 72 p.

O'Leary SJ, Dunton KJ, King L, Frisk MG, Chapman DD. 2014. Genetic diversity and effective size of Atlantic sturgeon, *Acipenser oxyrhinchus oxyrhinchus* river spawning populations estimated from the microsatellite genotypes of marine-captured juveniles. Conservation Genetics. 1-9.

Olsen YH, Merriman D. 1946. Studies on the marine resource of Southern New England. IV. The biology and economic importance of the ocean pout, *Macrozoarces americanus* (Bloch and Schneider). Bulletin of the Bingham Oceanographic Collection. 9(4): 1-184.

Olson J, Clay PM. 2001. An Overview of the Social and Economic Survey Administered during Round II of the Northeast Multispecies Fishery Disaster Assistance Program.Vol. Technical Memorandum NMFS-NE-164. Woods Hole (MA) 62 p.

Orach-Meza FL. 1975. Distribution and abundance of Ocean pout, *Macrozoarces americanus* (Bloch and Schneider) in the western North Atlantic Ocean [Master's thesis]. Kingston (RI): University of Rhode Island.

Pavlov DA, Novikov GG. 1993. Life history peculiarities of common wolffish (*Anarhincas lupus*) in the White Sea. ICES Journal of Marine Science. 50: 271-277.

Pavlov SL, Moksness E. 1994. Production and quality of eggs obtained from wolffish (*Anarhincas lupus* L.) reared in captivity. Aquaculture. 122: 295-312.

Payne AIL. 2003. Report on the Groundfish Science Peer Review Meeting, February 3-8, 2003. Center for Independent Experts. 43 p.

Payne PM, Heinemann DW. 1993. The distribution of pilot whales (*Globicephala sp.*) in shelf/shelf edge and slope waters of the northeastern United States, 1978-1988. Reports of the International Whaling Commission. 14: 51-68.

Payne PM, Nicholas JR, O'Brien L, Powers KD. 1986. The distribution of the humpback whale, *Megaptera novaeangliae*, on Georges Bank and in the Gulf of Maine in relation to densities of the sand eel, *Ammodytes americanus*. Fishery Bulletin. 84: 271-277.

Payne PM, Selzer LA, Knowlton AR. 1984. Distribution and density of cetaceans, marine turtles, and seabirds in the shelf waters of the northeastern United States, June 1980 - December 1983, based on shipboard observations. Woods Hole (MA): US Department of Commerce. NMFS NEFSC. 294 p.

Payne PM, Wiley DN, Young SB, Pittman S, Clapham PJ, Jossi JW. 1990. Recent fluctuations in the abundance of baleen whales in the southern Gulf of Maine in relation to changes in selected prey. Fishery Bulletin. 88: 687-696.

Pol M, He P. 2014. REDNET - A Network to Redevelop a Sustainable Refdish (*Sebastes fasciatus*) Trawl Fishery in the Gulf of Maine. Massachusetts Division of Marine Fisheries and UMass Dartmouth School for Marine Science and Technology. Final report - Component 3 - Codend Selectivity. Submitted to the Northeast Cooperative Research Partners Program. 38 p.

Reid RN, Steimle J, F.W. 1988. Benthic macrofauna of the Middle Atlantic Continental Shelf. In: Characterization of the Middle Atlantic Water Management Unit of the Northeast Regional Action Plan.AL Pacheco ed. Woods Hole (MA): Department of Commerce. NOAA Technical Memorandum NMFS-F/NEC-56. 125-160 p.

Risch D, Clark CW, Dugan PJ, Popescu M, Siebert U, Van Parijs SM. 2013. Minke whale acoustic behavior and multi-year seasonal and diel vocalization patterns in Massachusetts Bay, USA. Marine Ecological Progress Series. 489: 279-295.

Roper C, Sweeney M, Nauen C. 1984. FAO Species Catalogue - Cephalopods of the World: an annotated and illustrated catalogue of species of interest to fisheries. FAO Fisheries Synopsis. 3(125): 277.

Savoy T, Pacileo D. 2003. Movements and important habitats of subadult Atlantic sturgeon in Connecticut waters. Transactions of the American Fisheries Society. 132: 1-8.

Schevill WE, Watkins WA, Moore KE. 1986. Status of *Eubalaena glacialis* off Cape Cod. Reports of the International Whaling Commission. 10: 79-82.

Schilling MR, Seipt I, Weinrich MT, Frohock SE, Kuhlberg AE, Clapham PJ. 1992. Behavior of individually-identified sei whales *Balaenoptera borealis* during an episodic influx into the southern Gulf of Maine in 1986. Fishery Bulletin. 90(749-755).

Schmitz WJ, Wright WR, Hogg NG. 1987. Physical oceanography. In: The Marine Environment of the US Atlantic Continental Slope and Rise. Boston (MA): Jones and Bartlett Publishers, Inc. p. 27-56.

Scott JS. 1982. Depth, temperature and salinity preferences of common fishes of the Scotian Shelf. Journal of Northwest Atlantic Fisheries Science. 3: 29-39.

Scott WB, Scott MG. 1988. Atlantic Fishes of Canada. Toronto (CA): University of Toronto Press. 730 p.

SFA. Sustainable Fisheries Act. 1996. Public Law 104-297, 16 USC 1801.

Sherman K, Jaworski NA, Smayda TJ eds. 1996. The Northeastern Shelf Ecosystem - Assessment, Sustainability, and Management. Cambridge (MA): Blackwell Science.

Sherman S, Stepanek K, King C, Eckert R, Tetrault R. 2012. Annual Report on the Maine-New Hampshire Inshore Trawl Survey January 1, 2012-December 31, 2012 - Submitted to the NOAA Northeast Regional Cooperative Research Partners Program. 119 p.

Shoop C, Kenney R. 1992. Seasonal distributions and abundances of loggerhead and leatherback sea turtles in waters of the northeastern United States. Herpetological Monographs. 6: 43-67.

Sigourney DB, Ross MR, Brodziak J, Burnett J. 2006. Length at age, sexual maturity and distribution of Atlantic halibut, *Hippoglossus hippoglossus* L., off the Northeast USA. Journal of Northwest Atlantic Fisheries Science. 36: 81-90.

Steimle FW, Zetlin CA, Berrien DL, Johnson DL, Chang S. 1999. Essential Fish Habitat Source Document: Tilefish, *Lopholatilus chamaeleonticeps*, Life History and Habitat Characteristics. Woods Hole (MA): Department of Commerce. NOAA Technical Memorandum NMFS-NE-152. 30 p.

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

Stein A, Friedland KD, Sutherland M. 2004b. Atlantic sturgeon marine distribution and habitat use along the northeastern coast of the United States. Transactions of the American Fisheries Society. 133: 527-537.

Stevenson D, Chiarella L, Stephan D, Reid R, Wilhelm K, McCarthy J, Pentony M. 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. Woods Hole (MA): Dept. of Commerce. NEFSC Technical Memo NMFS-NE-181. 179 p.

Stumpf RP, Biggs RB. 1988. Surficial morphology and sediments of the continental shelf of the Middle Atlantic Bight. In: Characterization of the Middle Atlantic Water Management Unit of the Northeast Regional Action Plan.AL Pacheco ed. Woods Hole (MA): Department of Commerce. NOAA Technical Memorandum NMFS-F/NEC-56. 51-72 p.

Swingle W, Barco S, Pitchford T, McLellan W, Pabst D. 1993. Appearance of juvenile humpback whales feeding in the nearshore waters of Virginia. Marine Mammal Science. 9: 309-315.

Taning AV. 1936. On the eggs and young stages of the halibut. Medd Fra Kom For Havundersokelser Seri Fiskeri. IO(4): 1-23.

Templeman W. 1986. Some biological aspects of Atlantic wolffish (*Anarhincas lupus*) in the Northwest Atlantic. Journal of Northwest Atlantic Fisheries Science. 7: 57-65.

Thunberg E. 2007. Demographic and Economic Trends in the Northeastern United States Lobster (*Homarus americanus*) Fishery, 1970-2005.Vol. NEFSC Ref. Doc. 07-17. Woods Hole (MA): National Marine Fisheries Service. 64 p.

Timoshkin VP. 1968. Atlantic sturgeon (*Acipenser sturio* L.) caught at sea. Journal of Ichthyology. 8(4): 598.

Townsend DW. 1992. An overview of the oceanography and biological productivity of the Gulf of Maine. In: The Gulf of Maine.DW Townsend, Larsen PF eds. Silver Spring (MD): Department of Commerce. NOAA Coastal Ocean Prog. Regional Syntheses Series No. 1. 5-26 p.

Tucholke BE. 1987. Submarine geology. In: The Marine Environment of the US Atlantic Continental Slope and Rise. Boston (MA): Jones and Bartlett Publishers, Inc. p. 56-113.

Vu E, Risch D, Clark CW, Gaylord S, Hatch L, Thompson M, Wiley DN, Van Parijs SM. 2012. Humpback whale song occurs extensively on feeding grounds in the western North Atlantic Ocean. Aquatic Biology. 14(2): 175-183.

Waldman JR, Hart JT, Wirgin II. 1996. Stock composition of the New York Bight Atlantic sturgeon fishery based on analysis of mitochondrial DNA. Transactions of the American Fisheries Society. 125: 364-371.

Waldman JR, King T, Savoy T, Maceda L, Grunwald C, Wirgin I. 2013. Stock origins of subadult and adult Atlantic sturgeon, *Acipenser oxyrinchus*, in a non-natal estuary, Long Island Sound. Estuaries and Coasts. 36: 257-267.

Warden ML. 2011. Modeling loggerhead sea turtle (Caretta caretta) interactions with U.S. Mid-Atlantic bottom trawl gear for fish and scallops, 2005-2008. Biological Conservation. 144(2202-2212).

Waring G, Josephson E, Fairfield-Walsh CP, Maze-Foley K. 2007. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2007. Woods Hole (MA): U.S. Department of Commerce. NOAA Tech. Memo. NMFS NE 205. 415 p.

Waring G, Josephson E, Maze-Foley K, Rosel P. 2011. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2010. Woods Hole (MA): USDo Commerce. NOAA Tech. Memo. NMFS NE 219. 598 p.

Waring G, Josephson E, Maze-Foley K, Rosel P. 2014. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2013. Woods Hole (MA): U.S. Department of Commerce. NOAA Tech. Memo. NMFS-NE-228. 475 p.

Waring GT, Fairfiled CP, Ruhsam CM, Sano M. 1992. Cetaceans associated with Gulf Stream features off the northeastern USA shelf. ICES Journal of Marine Science. 1992/N:12: 29.

Watkins WA, Schevill WE. 1982. Observations of right whales (*Eubalaena glacialis*) in Cape Cod waters. Fishery Bulletin. 80(4): 875-880.

Whitehead H. 2002. Estimates of the current global population size and historical trajectory for sperm whales. Marine Ecology Progress Series. 242: 295-304.

Wiebe PH, Backus EH, Backus RH, Caron DA, Gilbert PM, Grassle JF, Powers K, Waterbury JB. 1987. Biological oceanography. In: The Marine Environment of the US Atlantic Continental Slope and Rise. Boston (MA): Jones and Bartlett Publishers, Inc. p. 140-201.

Winn HE, Price CA, Sorensen PW. 1986. The distributional biology of the right whale (*Eubalaena glacialis*) in the western North Atlantic. Reports of the International Whaling Commission. 10: 129-138.

Wirgin II, Maceda L, Waldman JR, Wehrell S, Dadswell MJ, King T. 2012. Stock origin of migratory Atlantic sturgeon in Minas Basin, Inner Bay of Fundy, Canada determined by microsatellite and mitochondrial DNA analyses. Transactions of the American Fisheries Society. 141(5): 1389-1398.

Wolff T. 1978. Maximum size of lobsters (Homarus) (Decapoda, Nephropidae). Crustaceana. 34(1): 1-14.

Yao Z, Crim LW. 1995. Copulation, spawning and parental care in captive ocean pout. Journal of Fish Biology. 47(171-173).

9.0 GLOSSARY

Annual Catch Limit (ACL): The limit of each groundfish stock that can be harvested by all vessels during each fishing year.

Annual Catch Entitlement (ACE): The sum of the PSCs for each MRI participating in a sector, multiplied by the commercial groundfish fishery ACL each stock for that year. The product of that multiplication is the ACE for that sector for each stock — the amount of stock in pounds that the sector is allowed to catch for that fishing year. The ACE of each stock equals the sum of PSCs times the ACL.

Buyout: A federal permit buyout is a capacity reduction program wherein all the funds used to buy permits are the result of appropriation or other federal allocation (i.e., fully funded by the federal government). The permits are then retired from the fishery.

Buyback: A federal permit buyback is a specific capacity reduction program outlined in Sections 312(b) and (c) of the MSFCMA wherein industry agrees to a fee system to repay a federally subsidized loan that is used to purchase permits. The permits are then retired from the fishery.

Bycatch: (v.) The capture of nontarget species in directed fisheries which occurs because fishing gear and methods are not selective enough to catch only target species. (n.) Fish which are harvested in a fishery but are not sold or kept for personal use, including economic discards and regulatory discards but not fish released alive under a recreational catch and release fishery management program.

Capacity: The level of output a fishing fleet is able to produce given specified conditions and constraints. Maximum fishing capacity results when all fishing capital is applied over the maximum amount of available (or permitted) fishing time, assuming that all variable inputs are utilized efficiently.

Catch: The sum total of fish killed in a fishery in a given period. Catch is given in either weight or number of fish and may include landings, unreported landings, discards, and incidental deaths.

Competitive fringe: A group of numerous small firms, each with 1 to 2 percent market shares, which cannot profitably influence market prices and will behave competitively. A competitive fringe limits the potential for firms with larger shares to successfully exercise market power.

Continental shelf waters: The waters overlying the continental shelf, which extends seaward from the shoreline and deepens gradually to the point where the sea floor begins a slightly steeper descent to the deep ocean floor; the depth of the shelf edge varies, but is approximately 200 meters in many regions.

Days absent: An estimate by port agents of trip length. This data was collected as part of the NMFS weighout system prior to May 1, 1994.

Days-at-sea (DAS): The total days, including steaming time that a boat spends at sea to fish. Amendment 13 categorized DAS for the multispecies fishery into three categories, based on each individual vessel's fishing history during the period fishing year 1996 through 2001. The three categories are: Category A: can be used to target any groundfish stock; Category B: can only be used to target healthy stocks; Category C: cannot be used until some point in the future. Category B DAS are further divided equally into Category B (regular) and Category B (reserve).

Discards: Animals returned to sea after being caught; see *bycatch (n.)*.

Essential Fish Habitat (EFH): Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The EFH designation for most managed species in this region is based on a legal text definition and geographical area that are described in the Habitat Omnibus Amendment (NEFMC 1998a).

Exclusive Economic Zone (EEZ): A zone in which the inner boundary is a line coterminous with the seaward boundary of each of the coastal States and the outer boundary is line 200 miles away and parallel to the inner boundary

Exempt fisheries: Any fishery determined by the Regional Director to have less than 5 percent regulated species as a bycatch (by weight) of total catch according to 50 CFR 648.80(a)(7).

Fishing effort: The amount of time and fishing power used to harvest fish. Fishing power is a function of gear size, boat size and horsepower.

Framework adjustments: Adjustments within a range of measures previously specified in a fishery management plan (FMP). A change usually can be made more quickly and easily by a framework adjustment than through an amendment. For plans developed by the NEFMC, the procedure requires at least two Council meetings including at least one public hearing and an evaluation of environmental impacts not already analyzed as part of the FMP.

Individual Fishing Quota (IFQ): Federal permit under a limited access system to harvest a quantity of fish, expressed by a unit or units representing a percentage of the total allowable catch of a fishery that may be received or held for exclusive use by an individual person or entity

Landings: The portion of the catch that is harvested for personal use or sold.

Limited-access permits: Permits issued to vessels that met certain qualification criteria by a specified date (the "control date").

Market power: The ability to manipulate prices to one's advantage based on one's share of participation in a market (e.g., by withholding supply from the market).

Meter: A measure of length, equal to 39.37 English inches, the standard of linear measure in the metric system of weights and measures. It was intended to be, and is very nearly, the ten millionth part of the distance from the equator to the North Pole, as ascertained by actual measurement of an arc of a meridian.

Metric ton: A unit of weight equal to a thousand kilograms (1kgs = 2.2 lbs.). A metric ton is equivalent to 2,205 lbs. A thousand metric tons is equivalent to 2.2 million lbs.

Moratorium Right Identifier (MRI): A unique identifying number that is attached to a Northeast multispecies permit. Each permit has its own MRI, and a given MRI is attached to only one permit. When NMFS calculates Potential Sector Contribution, it uses the MRI history, because this is the best way to determine how much multispecies groundfish has been associated with that permit over time.

Multispecies: The group of species managed under the Northeast Multispecies Fishery Management Plan. This group includes whiting, red hake and ocean pout plus the regulated species (cod, haddock, pollock, yellowtail flounder, winter flounder, witch flounder, American plaice, windowpane flounder, white hake and redfish).

Northeast Shelf Ecosystem: The Northeast U.S. Shelf Ecosystem has been described as including the area from the Gulf of Maine south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream.

Observer: Any person required or authorized to be carried on a vessel for conservation and management purposes by regulations or permits under this Act

Open access: Describes a fishery or permit for which there is no qualification criteria to participate. Open-access permits may be issued with restrictions on fishing (for example, the type of gear that may be used or the amount of fish that may be caught).

Potential Sector Contribution (PSC): The proportion of the total landings of a particular groundfish stock (in live pounds) associated with an individual MRI over a particular period. For most stocks managed by the Northeast Multispecies FMP the PSC is based on a MRI's landings history during fishing years (FYs) 1996-2006, divided by the landings history of the entire fleet for each stock.

Regulated groundfish species: Cod, haddock, pollock, yellowtail flounder, winter flounder, witch flounder, American plaice, windowpane flounder, white hake and redfish. These species are usually targeted with large-mesh net gear.

Species composition: A term relating the relative abundance of one species to another using a common measurement; the proportion (percentage) of various species in relation to the total on a given area.

Species diversity: The number of different species in an area and their relative abundance

Species richness: See *species diversity*. A measurement or expression of the number of species present in an area; the more species present, the higher the degree of species richness.

Statistical area: A delineated area of ocean used to track where fish were caught. NMFS overlays a grid of statistical areas onto nautical charts to accurately identify specific areas of the ocean. Statistical areas are approximately one degree square although in many cases they do not correspond exactly to specific latitudes and longitudes.

Stock: A grouping of fish usually based on genetic relationship, geographic distribution and movement patterns. A region may have more than one stock of a species (for example, Gulf of Maine cod and Georges Bank cod). A species, subspecies, geographical grouping, or other category of fish capable of management as a unit.

Stock area: A group of connected statistical areas that defines the geographic distribution of a particular population of an individual species. For example, the Gulf of Maine (GOM) cod stock area comprises statistical areas 464, 465, 467, 510, 511, 512, 513, 514, and 515. All catch of cod in any of these stock areas is attributed to the GOM cod stock.

Total Allowable Catch (TAC): The amount (in metric tons) of a stock that is permitted to be caught during a fishing year. This value is calculated by applying a target fishing mortality rate to exploitable biomass. In the Multispecies FMP, TACs can either be "hard" (fishing ceases when the TAC is caught) or a "target" (the TAC is merely used as an indicator to monitor effectiveness of management measures, but does not trigger a closure of the fishery).

Valued Ecosystem Component (VEC): A resource or environmental feature that is important (not only economically) to a local human population, or has a national or international profile, or

if altered from its existing status, will be important for the evaluation of environmental impacts of industrial developments, and the focusing of administrative efforts.

TMGC Quota Trading Mechanism
Guiding Principles
February 2013

Objective
Quota trading should provide an additional source of flexibility for the U.S. and Canada and create additional fishing opportunities. Increased fishing opportunities through quota trades would provide mutual benefit while also maintaining consistency with TMGC harvest strategies.

1. Trades Country to Country
   Trades would occur between countries as opposed to between U.S. and Canadian business entities. Initial drive for quota trade would occur at the industry level, and the GOMAC or the Council would approach NMFS or DFO about the possibility of a trade. A request for a quota trade would then be made to the respective country.

2. Respective Management Body Approval
   Quota trade mechanism would be presented to Steering Committee. Mechanism would have to be approved by the Council and would likely require a revision to the Fishery Management Plan. For Canada, a trading mechanism would be approved by GOMAC and then forwarded to DFO/Minister for final approval.

   Approval of quota trades for Canada would occur at GOMAC/DFO. U.S. approval would need Council/NMFS approval. If Steering Committee approved TMGC annual guidance, quota trades would likely not have to go back to the Steering Committee.

3. Separate Process
   Trades would be agreed to separate from the TAC-setting process.

4. Trades could occur prior, during, or after fishing year
   As experience is gained in trading, all of these options could be utilized. Initially, the pilot project will determine the next steps.

5. Trades could occur between fishing years
   Trade could be made for adjacent fishing years (after annual guidance was set for upcoming fishing year). The TMGC does not recommend multi-year trades at this time.

6. Mutually beneficial
   Any quota trades would be mutually beneficial to the respective fishing industries.

7. No impact to catch history or sharing
   Quota trades would not impact the catch histories of either country. The TMGC does not intend for quota trades to impact the current sharing agreement or influence catch histories.

8. Biological considerations
   The TMGC recommends exploring the implications of temporal and spatial differences in fishing mortality. There may be finer scale biological implications of quota trades; however, these implications would be difficult to discern, and may not be measurable. Quota trades could also exacerbate assessment issues (e.g., retrospective pattern). Other factors that should be considered include changes in selectivity, survey distributions, and potential spawning aggregation implications.

9. Only TMGC stocks
   Trades would only be considered for Eastern GB cod and haddock and GB yellowtail.

10. Pilot project
    A pilot project could be used to initiate quota trading and explore the process and implementation of a trading mechanism. During the pilot project, the TMGC would review the trading mechanism and recommend refinements/modifications to the process, as required. This review would be completed before the end of the pilot project.