Fishing Year 2013 Northeast Multispecies Sector Operations Plans and Contracts

An Environmental Assessment

National Marine Fisheries Service
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ACRONYMS

ABC	Acceptable Biological Catch
ACE	Annual Catch Entitlement
ACL	Annual Catch Limit
ALWTRP	Atlantic Large Whale Take Reduction Plan
AM	Accountability Measure
ASMFC	Atlantic States Marine Fisheries Commission
B_{MSY}	Biomass necessary to produce maximum sustainable yield
CEA	Cumulative Effects Assessment
CEQ	Council on Environmental Quality
cm	Centimeter
Council	New England Fishery Management Council
CPUE	Catch per unit of effort
CY	Calendar year
DAS	Days-at-sea
DSM	Dockside Monitoring Program
DPS	Distinct population segment
EA	Environmental Assessment
EEZ	Exclusive economic zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
F	Fishing mortality rate
FGS	Fixed Gear Sector
FMP	Fishery management plan
F_{MSY}	Fishing mortality rate that produces the maximum sustainable yield
FW	Framework
FY	Fishing year
GARM	Groundfish Assessment Review Meeting
GB	Georges Bank
GOM	Gulf of Maine
HPTRP	Harbor Porpoise Take Reduction Plan
kg	Kilogram
km	Kilometer

lbs	Pounds
m	Meter
MAFMC	Mid-Atlantic Fishery Management Council
MCS	Maine Coast Sector
mm	Millimeter
MMPA	Marine Mammal Protection Act
MSY	Maximum Sustainable Yield
mt	Metric ton
NCCS	Northeast Coastal Communities Sector
NEFMC	New England Fishery Management Council
NEFS	Northeast Fishery Sector
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
PBR	Potential Biological Removal
PSC	Potential Sector Contribution
RMA	Regulated Mesh Area
SAP	Special Access Program
SBRM	Standardized Bycatch Reporting Methodology
SEFSC	NMFS Southeast Fisheries Science Center
SHS	Sustainable Harvest Sector
SNE	Southern New England
SNE/MA	Southern New England/Mid-Atlantic
TAC	Total allowable catch
TED	Turtle exclusion device
TSS	Tri-State Sector
U.S.	United States
USFWS	United States Fish and Wildlife Service
VEC(s)	Valued Ecosystem Component(s)
VMS	Vessel Monitoring System
VTR	Vessel trip report
WNA	Western North Atlantic

1.0 INTRODUCTION

What's in Section 1?

Section 1 explains why and how this document was prepared. It also gives background information on the Northeast Multispecies fishery and a history of sector management. This document evaluates:

- Sector operations plans for fishing year 2013
- Exemptions from multispecies regulations for sectors during fishing year 2013

What is a sector?

A sector consists of three or more persons who:

- hold limited access Northeast Multispecies vessel permits
- do not have an ownership interest in the other two persons in the sector
- voluntarily enter into a contract in which they self-select their members
- are granted an annual allocation of large-mesh multispecies fish
- agree to certain fishing restrictions for a specified period of time

Sectors are a relatively new management tool in the Northeast Multispecies fishery. In 2004, Amendment 13 to the Northeast Multispecies Fishery Management Plan (FMP) authorized the first sector. Amendment 16 to the FMP revised and expanded the sector program in 2010.

Why is this document being prepared?

Sectors wanting to operate in a given fishing year must submit an operations plan and an accompanying National Environmental Policy Act (NEPA) document for approval by the National Marine Fisheries Service (NMFS).

A sector operations plan is an enforceable document that details how the sector and its member vessels operate in a given fishing year. The plan specifies how the sector distributes its allocation of fish among members and enforces sector rules.

Due to the interrelated nature of impacts resulting from the operation of sectors, and exemptions to fishery regulations, NMFS agreed to prepare the required NEPA documentation to accompany the 17 sector operations plans it received for fishing year (FY) 2013. FY 2013 for the Northeast Multispecies fishery runs from May 1, 2013 to April 30, 2014. This Environmental Assessment (EA) describes the potential impacts of approving FY 2013 sector operations plans on the human, physical, and biological environment. NMFS prepared this EA in compliance with the sector provisions as described in Amendment 16 to the Northeast Multispecies FMP (75 FR 18262 4/9/2010) and as implemented by the regulations at 50 CFR 648.87.

Why was the analysis for all sectors combined into one document?

This EA incorporates analyses for all eighteen FY 2013 sector operations plans. Once a proposed rule is filed with the Federal Register, these operations plans can be viewed at: http://www.nero.noaa.gov/regs/. NMFS chose this method for several reasons. First, each sector can trade their entire annual allocation of

fish. This makes it difficult to limit the scope of the analysis to one sector's initial allocation. Second, each sector can request exemptions from Northeast Multispecies regulations in their operations plans. Since sectors can trade their allocations amongst themselves, no direct correlation can be made between a specific sector, allocation, and regulatory exemption. Therefore, NMFS analyzes each exemption for approval to all sectors. Sectors benefit from this approach, gaining flexibility in obtaining an exemption which they may not have originally requested, while NMFS is able to better analyze the maximum impact of an exemption. Lastly, NMFS took this single EA approach based on the continued uniformity seen in the FY 2013 operations plans. This method is consistent with the approach taken since the FY 2011 sector operations plan EA. NMFS intends for this approach to be more user friendly than preparing a separate EA for each of the sector operations plans.

What is the basis for the analysis in this document?

The analysis in this EA tiers off the broader information and analysis contained in the Environmental Impact Statement (EIS) for Amendment 16 to the Northeast Multispecies FMP. "Tiering" is encouraged by the Council on Environmental Quality (CEQ) to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review (40 CFR 1502.20). The Amendment 16 EIS analyzed fishery-wide measures to achieve mortality targets, target healthy stocks, and mitigate the economic impacts. The Amendment 16 EIS also examined measures to improve administration of the fishery, including an analysis of the sector program.

NMFS based the analysis in this EA upon the sector operations plans for fishing year 2013 that sectors submitted on September 4, 2012. Along with their sector operations plans, sectors are required to submit a membership roster. The roster deadline for FY 2013 has been extended until March 29, 2013, such that it is not available for inclusion in the EA. Therefore, not all sectors have submitted FY 2013 roster information. For those sectors that have submitted roster data, the data is current through September 4, 2012.

A sector roster is a list of limited access Northeast Multispecies permits enrolled in a sector for a given fishing year and have signed a contract with the sector.

The analysis in this document assumes that 100% of the limited access Northeast Multispecies permits enroll in sectors for FY 2013. In FY 2012 sector vessels held approximately 99% of the allocation for the entire fishery. Therefore, assuming 100% effort for this EA is a small and appropriate increase from the anticipated sector allocation. This conservative approach ultimately allows NMFS to analyze the maximum fishing effort that could occur under sectors and avoids underestimating sector effort should sector rosters change before April 30, 2013.

1.1 MULTISPECIES FISHERY

The New England Fishery Management Council (NEFMC or Council) implemented the Northeast Multispecies FMP in 1986 to comply with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The FMP sought to reduce fishing mortality of heavily fished groundfish stocks and promote rebuilding of those stocks to sustainable biomass levels.

The Northeast Multispecies FMP currently manages thirteen species. Some of these species are sub-divided into individual stocks based on geographic area. These species and stocks include:

- Georges Bank (GB) Cod
- Gulf of Maine (GOM) Cod
- GB Haddock
- GOM Haddock
- GB Yellowtail Flounder
- Southern New England/Mid-Atlantic (SNE/MA)Yellowtail Flounder
- Cape Cod/GOM Yellowtail Flounder
- American Plaice
- Witch Flounder
- GB Winter Flounder
- GOM Winter Flounder
- SNE/MA Winter Flounder
- Redfish
- White Hake
- Pollock
- Gulf of Maine-Georges Bank windowpane flounder
- Southern New England-Mid-Atlantic Bight windowpane flounder
- Ocean Pout
- Atlantic Wolffish
- Atlantic Halibut

The Northeast Multispecies FMP operates under a dual management system which breaks the fishery into two components: sectors and the common pool (non-sector fishery).

1.1.1 Sectors

What is the official definition of a sector?

The regulations at 50 CFR § 648.87 define a sector as "[a] group of persons (three or more persons, none of whom have an ownership interest in the other two persons in the sector) holding NE multispecies limited access vessel permits who have voluntarily entered into a contract and agree to certain fishing restrictions for a specified period of time, and which has been granted a total allowable catch (TAC) (in order to achieve objectives consistent with applicable FMP goals and objectives." Sectors are self-selecting, meaning each sector maintains the ability to choose its members.

How are sector allocations determined?

Each sector receives a total amount (in pounds) of fish it can harvest for each stock. This amount is the sector's Annual Catch Entitlement (ACE). Each individual sector's ACE for a particular stock represents a share of that stock's Annual Catch Limit (ACL). ACLs are the amount of catch allowed for the entire Northeast Multispecies fishery. The Magnuson-Stevens Act requires these levels are set in order to ensure that overfishing does not occur.

In the Northeast Multispecies fishery, the ACL is set below the Acceptable Biological Catch (ABC) of the fishery, to account for management and scientific uncertainty. When permit holders join a sector, they bring a Potential Sector Contribution (PSC), which is a share of the ACL for each stock. PSC is based on the fishing history attached to each permit joining that sector in a given year. To determine the ACE, all of the sector members' PSCs (a percentage) are multiplied by the ACL. In other words, a sector's ACE is the sum of its members' PSCs. Sectors may lease ACE to any other sector at any time during the fishing year.

What fish stocks are allocated to sectors?

NMFS allocates a total of 14 Northeast Multispecies fish stocks to sectors. This document refers to these fish as "allocated target species".

Sectors are not allocated certain stocks of concern. These species include Atlantic halibut, windowpane flounder, ocean pout, Atlantic wolffish, and Southern New England/Mid-Atlantic (SNE/MA) winter

flounder. Note: Southern New England/Mid-Atlantic (SNE/MA) winter flounder is being considered for allocation by FW 48 and 50 of the NE Multispecies FMP.

Although GB cod and haddock are divided into two separate stocks (eastern and western), NMFS does not assign individual sector members a PSC for Eastern GB cod or Eastern GC haddock. Each sector is allocated a portion of the GB cod and GB haddock ACE to harvest exclusively in the Eastern U.S./Canada Area. The amount of cod and haddock that a sector may harvest in the Eastern U.S./Canada Area is calculated by multiplying the cumulative PSC of the GB cod and haddock allocated to a sector by the Eastern U.S. Canada TAC available to the commercial groundfish fishery. Each sector then decides how to allocate Eastern GB cod or Eastern GB haddock amongst its members.

Terms to know:

Allocated target species are the groundfish species for which the sector receives an ACE.

Non-allocated target species are species which sector vessels target but are not assigned an ACE. Non-allocated target species may be caught by the same gear while fishing for allocated target species. They may be brought to shore and sold to dealers (i.e., "landed") if the fisherman has proper authorization or permit(s). These non-allocated target species may be managed under the Northeast Multispecies FMP (e.g., halibut and whiting) or another FMP (e.g., Monkfish FMP).

As defined in the Magnuson-Stevens Act, **bycatch** refers to "fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards."

Can sectors harvest species that are not allocated?

In addition to harvest of allocated species, sector participants may also harvest non-allocated target species and bycatch species. For the purposes of this EA, the discussion of non-allocated target species and bycatch refers primarily to skates, monkfish, and dogfish. These species dominate bycatch (e.g. dogfish) or are the primary alternate species that groundfishermen land (e.g monkfish and skates).

Can a sector exceed its allocation?

The ACE is a hard total allowable catch (TAC) which the sector cannot exceed. Therefore, this output based sector system caps the total amount of each stock which fishermen can harvest. Once a sector catches its entire ACE for a particular stock, it is required to cease all fishing operations in that stock area until it acquires additional ACE for that stock. A stock area is the entire geographic area in which a stock is managed. Any sector which exceeds its ACE in a given fishing year is subject to accountability measures such as a reduction in its ACE for the following year to account for the previous year's overage.

What are the benefits of the sector system?

A sector's ACE caps fishing mortality. Therefore, sectors:

- are exempt from some effort control measures such as Days at Sea (DAS) on all allocated groundfish stocks, differential DAS counting areas, trip limits on allocated stocks, and the seasonal closure on Georges Bank (see universal exemptions below)

- serve as an important tool for ending overfishing and rebuilding overfished fish stocks
- are held accountable for their landings and discards. Accountability Measures (AMs) are triggered if their ACLs are exceeded.

Sectors are designed to alleviate social and economic hardships that may result from stock rebuilding efforts by:

- Reducing costly input controls that were designed to decrease efficiency,
- Promoting operational flexibility for sector members by the:
    - Internal and external transfer of ACE
    - Pooling of harvesting resources

Sector operations plan requirements are specified at 50 CFR § 648.87(b)(2).

What are the requirements for a sector operations plan?

In order to receive an ACE, sectors submit an operations plan to NMFS for approval. Sectors must submit their operations plans by September 4, 2012, in order to be considered for FY 2013. A sector can request that NMFS approve their operations plan for either one or two fishing years. The operations plan is legally binding and is subject to NEPA review. The plan describes how the sector will fish their ACE and monitor their catch. It also governs the fishing behavior of sector members for the entire fishing year. If, for example, a member chooses to leave the sector during the fishing year, that member's contribution to the sector's allocation would remain with the sector for the remainder of the fishing year. As a result, that member would not be allowed to fish in the groundfish fishery for the rest of that fishing year.

A sector operations plan generally includes:

- a list of all participating permits
- a plan for consolidation or redistribution of ACE
- information about redirection of effort into other fisheries
- a list of management or harvest rules
- a method for the allocation of the sector's ACE amongst its members
- information about entry, exit and expulsion from a sector
- information regarding intra-sector penalties
- a detailed plan for monitoring and reporting of landings and discards, including thresholds which increase the reporting frequency, and
- a list of proposed exemptions from Northeast Multispecies regulations

Are sectors exempt from any other regulations?

Sectors are universally exempt from a number of multispecies regulations. Since a sector's ACE caps fishing mortality, many effort control measures are no longer necessary. Amendment 16 universally exempted sectors vessels from:

- groundfish DAS requirements, including DAS reductions, differential groundfish DAS counting
- the 3/15 rule for gillnets
- the Georges Bank Seasonal Closure in May
- all Gulf of Maine Rolling Closures except for: Blocks 124 and 125 in April; Blocks 132 and 133 in April-May; Block 138 in May; Blocks 139 and 140 in May-June; and Blocks 145, 146,147, and 152 in June

- any additional mortality controls adopted by Amendment 16, including additional seasonal or year-round closures[1], gear requirements, DAS reductions, differential DAS counting, and restricted gear areas
- the requirement to use 6.5-inch mesh (16.5 cm) in the codend in haddock separator trawl/Ruhle trawl when targeting haddock in the Georges Bank Regulated Mesh Area (i.e., authorized to use 6-inch mesh (15.2 cm) in the codend)
- and 24-hour DAS counting trip limits on stocks for which a sector receives an allocation, except for the following:

    a) Halibut. The trip limit would continue to be one fish per trip; and
    b) Windowpane flounder (both stocks), ocean pout, wolffish, or Southern New England and Mid-Atlantic (SNE/MA) winter flounder: No vessel, whether in the common pool or in any sector, can possess any of these stocks on board at any time. When caught, these species must be returned to the sea and reported as discarded

The Final EIS for Amendment 16 to the Northeast Multispecies FMP (Council, 2009a) analyzed these universal exemptions. Refer to the Amendment 16 FEIS and final rule for further description of these universal exemptions.

How do sectors interact with the U.S./Canada Area and Special Access Programs (SAP)?

Sectors receive a separate ACE for those stocks that have a TAC specific to the Eastern U.S./Canada Area. This currently applies to GB cod and GB haddock only. However, this measure would apply to other stocks if an area-specific TAC is defined. For further information see section 4.2.3.3.3 of the Amendment 16 EIS.

Sector vessels can participate in special management programs provided the sector has ACE for the stocks caught in the SAP, and the ACE is sufficient to account for the expected catch in the SAP. Amendment 16 details sector guidelines for participating in the Eastern U.S./Canada Haddock SAP, Closed Area II Yellowtail Flounder SAP, and Closed Area I Hook Gear Haddock SAP. For further information see section 4.2.3.8 of the Amendment 16 EIS.

1.1.2 Common Pool

Fishermen who do not join a sector fish in the common pool. Vessels in the common pool are allocated a certain number of Days at Sea (DAS). Vessels that fish in the common pool are managed by a variety of input and effort controls such as DAS, trip limits, closed areas, minimum fish sizes, and gear restrictions. These effort controls are subject to inseason adjustments. While vessels in the common pool can lease DAS from other common pool vessels, no exchange of DAS or ACE can occur between the common pool and sector vessels. In FYs 2010 through 2011, approximately 42-55 percent of limited access NE multispecies permits elected to fish in the common pool. *However, these permits only accounted for approximately 2 percent of the historical fishing effort.* Therefore the common pool only receives a very minor portion of the ACL.

Fishermen who do not join a sector fish in the common pool.

[1] NMFS is granting year-round access to the Eastern U.S./Canada Area for yellowtail flounder as stipulated, but not specified, in Amendment 16.

1.1.3 Potential for Redirection of Effort and/or Fleet Consolidation

Sectors provide information in their FY 2013 operations plans about their expected level of effort redirection and vessel consolidation. The sectors make these predictions based on vessel activities in the first quarter of FY 2012. Sectors identify the percentage of enrolled permits that were attached to vessels in FY 2012 as opposed to the percentage expected to fish for groundfish in FY 2013. Further, operations plans identified the percentage of permits associated with vessels anticipated during FY 2013. Seven sectors expect that, compared to FY 2012, there would be little to no change from the consolidation that previously occurred within the sector during FY 2012. In this case, most sectors anticipate that a member who owns multiple permits and fished all those permits on a single hull will now continue to fish the harvest share contributed by all of those permits on the same single hull, resulting in no additional consolidation. Eight sectors reported that they anticipated a smaller percentage of permits attached to active fishing vessels in FY 2013 as compared to FY 2012. NEFS 4 is a lease only sector and notes in their operations plan that their leases will help to minimize consolidation in the NEFS 2 & NEFS 3 sectors.

Sectors report that their members redirected on the following species in FY 2011 and/or FY 2012: Atlantic bluefish, Atlantic sea scallops, black sea bass, bluefin tuna, butterfish, elvers, fluke, herring, lobster, mackerel, monkfish, other multispecies, scup, shrimp, skates, spiny dogfish, squid, striped bass, summer flounder, swordfish whiting. Six sectors anticipate that they would have no redirection in FY 2013. The remaining sectors anticipate that redirection would be similar to the species they redirected on in FY 2011 and/or FY 2012. The Maine Coast Sector noted that they anticipate a greater redirection on the whiting fishery in FY 2013.

Section 4.6.7.3 provides more information on consolidation and redirection trends in this fishery.

1.2 HISTORY OF SECTORS IN THE NORTHEAST MULTISPECIES FISHERY

1.2.1 Amendment 13

The final rule implementing Amendment 13 to the Northeast Multispecies FMP (69 FR 22906, April 27, 2004) implemented a process for the formation of additional sectors and for allocation of TAC[2] or DAS, depending on the groundfish stock. Amendment 13 established the various elements of the first sector, the Georges Bank Cod Hook Sector, and implemented restrictions that apply to all sectors. NMFS approved the Georges Bank Cod Hook Sector for operation in 2004 (69 FR 43535 July 21 2004). Framework (FW) 42 authorized the GB Cod Fixed Gear Sector in 2006 (71 FR 62156, October 23, 2006).

Amendment 13 also laid out the rebuilding plans for certain stocks managed under the Northeast Multispecies FMP. NMFS completed benchmark stock assessment meetings in 2005 and 2008. NMFS checked stock rebuilding progress through Groundfish Assessment Review Meeting (GARM) II and GARM III (Mayo and Terceiro 2005, NEFSC 2008). The results of the GARM III indicated a need for adjustments to the rebuilding plans (NEFSC 2008). Per Amendment 13 revised rebuilding timelines needed to be in place for FY 2009 (halfway through the rebuilding plan for most stocks).

[2] TAC is the catch limit set for a particular fishery. It is generally set for a year, or part of a year. The revised 2006 Magnuson-Stevens Act replaced the term TAC with the term ACL, However, TAC is still used in reference to stocks jointly managed by U.S. and Canada and is referenced by older regulations such as Amendment 13 to the Northeast Multispecies FMP.

1.2.2 Amendment 16

Amendment 16 to the Northeast Multispecies FMP addressed the findings of the GARM III by imposing management measures consistent with species rebuilding plans and schedules. During the 2006 scoping process, the Council received a number of recommendations for new ways to manage the fishery. All of the recommendations required major changes to the Northeast Multispecies FMP (71 FR 64941, November 6, 2006). Faced with a 2009 deadline, the Council voted to postpone development of all new management alternatives. This left Amendment 16 to focus on addressing the rebuilding plans as required under Amendment 13. However, in April 2007, 17 different groups of fishermen submitted sector proposals and requested that the Council consider and approve additional new sectors through Amendment 16. As a result of the increased interest in sectors, the Council decided to revise sector procedures and policies in Amendment 16. Revisions included the implementation of dockside and at-sea monitoring program requirements, as well as provisions to allow the trading of ACE between sectors. The Council submitted the final Amendment 16 and accompanying Final EIS on October 16, 2009. NMFS issued the proposed rule for Amendment 16 on December 31, 2009, (74 FR 69382) and the final rule on April 9, 2010 (75 FR 18262).

Amendment 16 ushered in a new level of sector participation.

Amendment 16 ushered in a new level of sector participation. In FY 2010, NMFS allocated ACE to 17 sectors through FW 44 [(75 FR 18356, April 9, 2010), Final Adjustment to FW 44 Specifications (75 FR 29459, May 26, 2010)]. Over 50 percent of eligible Northeast Multispecies permits and approximately 98 percent of landings history participated in sectors during FY 2010. NMFS prepared seventeen individual EAs, one for each discrete sector operations plan. NMFS approved of seven different sector exemptions for FY 2010.

1.2.3 Sector Management in FY 2011 & FY 2012

Seven additional groups of fishermen submitted sector proposals for consideration by the Council as new sectors in FY 2011. Five of these groups were proposed and approved in FW 45. Four of these sectors involved National Oceanic and Atmospheric Administration (NOAA)-sponsored, state-operated permit banks. State-operated permit banks were formed for the sole purpose of transferring ACE to qualifying sectors at any time during the fishing year (see Section 3.2 for further discussion). However, only the Maine Permit Banking Sector was ultimately able to fulfill sector membership requirements to operate in FY 2011. Amendment 17 to the FMP was completed in 2012 to further develop State-operated permit banks, and to streamline the administrative requirements these permit banks must meet to lease ACE to a sector. As a result, no state operated banks submitted operations plans to become sectors for FY 2013.

NMFS approved 19 sectors to operate in FY 2011 (76 FR 23076). NMFS granted sectors a total of 17 exemptions from multispecies fishing regulations. Sector enrollment for FY 2011 represented over 50 percent of eligible northeast groundfish multispecies permits and over 98 percent of the ACL for the entire fishery.

NMFS approved 19 sectors to operate in FY 2012 (77 FR 26129). NMFS granted sectors a total of 20 exemptions from multispecies fishing regulations. Sector enrollments for FY 2012 represented over 60 percent of eligible northeast groundfish multispecies permits and approximately 99 percent of the ACL for the entire fishery.

2.0 PURPOSE AND NEED FOR THE ACTION

What's in Section 3?

This section describes the proposed action and alternatives considered for FY 2013. A no action alternative is also described for each alternative.

- Alternative 1 considers the approval of sector operations plans.
- Alternative 2 considers exemptions from multispecies regulations for approved sectors.

Although grouped together for analysis, NMFS would independently approve or disapprove each sector operations plan and exemption in the final action. Aggregating the sectors allows NMFS to analyze the maximum potential impacts of each exemption and accounts for the possibility of entire allocations being traded between sectors.

The purpose of this action is to facilitate the implementation of FY 2013 sector operations plans and associated regulatory exemptions. In an effort to rebuild the Northeast Multispecies complex, other actions have reduced the allocations of several stocks managed by the Northeast Multispecies FMP. This action is needed to provide flexible fisheries management that alleviates potential social and economic hardships resulting from those reductions. This action seeks to fulfill the purpose and need while meeting the biological objectives of the Northeast Multispecies FMP, as well as the goals and objectives set forth by the Council in the Northeast Multispecies FMP.

The receipt of 17 sector applications for FY 2013 validates the need for this action. Each sector would represent a group of limited access multispecies permit holders cooperating to harvest their allocation more efficiently.

3.0 PROPOSED ACTION AND ALTERNATIVES

What's in Section 2?

This section describes:

- the specific objectives of this action (purpose)
- the underlying problem that will be addressed in this action (need)

3.1 ALTERNATIVE 1 - IMPLEMENTATION OF SECTOR OPERATIONS PLANS FOR FISHING YEAR 2012

Alternative 1 is the approval of up to 17 sector operations plans for FY 2013. Vessels enrolled in an approved sector would fish under the sector provisions of the Northeast Multispecies FMP and their sector's harvest rules. An ACE would limit each sector's total harvest.

Table 3.1-1 identifies each individual sector and summarizes sector participants as a group based on roster information submitted as of March 29, 2013. They would utilize 24 primary ports located throughout the Northeast and Middle Atlantic regions. The vessels would likely fish throughout the year on all major Northeast fishing grounds to which they are granted access.

Each sector requested an ACE in their operations plan. In FY 2012 the percentage of ACL for the 14 stocks that NMFS would allocate as ACE ranges from less than 0.01% to 50.24% (Table 3.1-2). We expect little change for FY 2013, and the roster deadline for FY 2013 has been extended until March 29, 2013, such that it is not available for inclusion in the EA. Although the roster data provides some baseline information on the fishery, as stated earlier in the EA, this sector EA assumes that 100 percent of the fishing effort could occur in sectors. Please refer to Appendix B for a breakdown of each sector's FY 2012 PSC by allocated target stock compared to all other sectors and the common pool. Please refer to Figure 5.2.2-1 for a comparison of the percentage of allocated target stocks in all sectors and the common pool in FY 2012.

A complete description of each individual sector's operations plan is available at http://www.regulations.gov.

There are a few special provisions that some sectors have included in their operations plan that NMFS believes may result in impacts beyond those discussed generally for all sectors. These special provisions are described below:

Normally, sectors are prohibited from fishing in a stock's area when its ACE for that stock is caught or exceeded. However, under regulations at § 648.87(b)(2)(xiv), a sector may propose a program to participate in other fisheries that have a bycatch of NE multispecies when it does not have ACE for the stocks caught, if it can show how NE multispecies will be avoided. The GB Cod Fixed Gear Sector and NEFS 5 requested approval to continue fishing operations despite having used its entire ACE for at least one allocated stock.

Many of these fishing with no ACE proposals have some geographical and temporal overlap with existing or proposed large mesh exempted fisheries, including: The SNE monkfish and Skate Exemption Area for both trawl and gillnet vessels, the Mid-Atlantic Exemption area, the GOM/GB Dogfish Exemption Area for gillnet vessels, and a proposed GB Dogfish Exemption for gillnet, longline, and handgear vessels. These and all other exempted fisheries were, or are in the process of being established because the incidental catch of NE multispecies stocks in these programs is less than 5-percent of all catch. A vessel participating in an exempted fishery declares out of the NE multispecies fishery and therefore may not retain NE multispecies encountered. Any sector vessel may already fish in these large mesh exempted fisheries and all other exempted fisheries outside of the sector program without requiring ACE. Descriptions and additional information on approved exempted fisheries are available on our website at: http://www.nero.noaa.gov/nero/regs/info.html.

NMFS reviewed both VTR and NEFOP observer/ASM data from FY 2010 and 2011 for these requests. This data indicated that very few sector trips from FYs 2010 and 2011 met the standard of zero catch of limiting stock outlined in the guidance we issued to sectors. However, the data for several of the requests from FYs 2010 and 2011 indicates that the limiting stock comprised of less than 1 percent of catch. Request not meeting the less than 1 percent threshold were rejected from further consideration (Section 3.3). The requests meeting the 1-percent threshold are summarized below and are proposed for approval (Table 3.1-1).

Table 3.1-1 Fishing with no ACE requests proposed for approval					
Sector	**Limiting Stock**	**Stat Area**	**Gear**	**Target Stock**	**Time Period**
GB Cod Fixed Gear Sector	All ACE Stocks	526	Extra Large Mesh Gillnet (ELM)	Monkfish Dogfish Winter Skate	Year Round
		537	Extra Large Mesh Gillnet (ELM)	Monkfish	May-March
				Winter Skate	Year Round
			Large Mesh Gillnet (LM)	Winter Skate	Year Round
NEFS 5	GB West Cod	611	Trawl (OTF)	Summer Flounder	Oct-April
		613		Summer Flounder Monkfish	

NEFS 5 proposed to require its participating vessels to submit trip start and end hails to the sector manager, to land any limiting stock encountered, and to prohibit a vessel landing the limiting stock from fishing until that ACE is covered thru a transfer. In addition, the sector may charge the member additional fees for encountering the limiting stock. The GB Cod Fixed Gear sector did not propose such provisions. To implement a consistent program for both sectors, NMFS proposes several requirements for a vessel participating in an approved program to fish with no ACE.

First, to aid in identifying these trips, a vessel intending to utilize this provision on a sector trip would be required to submit a trip start hail identifying the trip as one that will fish in an approved program to fish with no ACE. NEFS 5 may require its participating vessels to submit a trip end hail, as detailed in the operations plan.

Second, 100-percent monitoring would be required when a vessel in one of these two sectors wishes to fish under this provision. NMFS has substantial concern with approving a provision to allow a sector to fish without ACE, and believe that 100-percent monitoring would be necessary for accurate monitoring given the very low 2013 quotas for some of the stocks. In addition, all sector trips that are not assigned monitoring receive a calculated discard rate, based on the total catch from that trip and actual discards from monitored trips in the same area and with the same gear. Because a trip under this provision allows a sector vessel to fish with no ACE of a limiting stock, NMFS cannot apply a calculated discard rate for that limiting stock or the sector would automatically exceed its ACE for the limiting stock on every trip. Requiring 100-percent monitoring ensures that the trip will receive accurate discard information. Because this exemption would require 100 percent observer or at-sea monitoring coverage and NMFS has limited funding to pay for observer and at-sea monitoring coverage, NMFS is proposing that industry fund 100%

of the at-sea monitoring expenses when a vessel utilizes this exemption. Vessels interested in utilizing this exemption will not have the opportunity to request a federally-funded observer or at-sea monitor. Third, NMFS would allow these sectors to catch a *de minimis* amount of the limiting stock (100 pounds), prior to canceling a sector's ability to utilize that approved program. The sector would be required to account for the landing of the limiting stock through its ACE and therefore must transfer in additional ACE by the end of the fishing year to cover such an overage. Once a sector reaches the *de minimis* threshold of 100 pounds, the sector may transfer in additional ACE and resume normal fishing activity, but may not attempt to fish under this provision for the remainder of this fishing year.

Most sectors have also included a provision in their operations plans that prohibits a sector vessel from fishing outside of Broad Stock Area 1 (the entire Gulf of Maine) if it fishes west of 70° 15'W. This provision, referred to as the "Inshore Gulf of Maine Declaration" requires sector vessels to declare their intention to fish "inshore" or "offshore" prior to departure. Vessels declaring an "inshore" trip can fish anywhere in Broad Stock Area 1. Vessels declaring an "offshore" trip can fish anywhere in the Gulf of Maine, Georges Bank, or south, except for inshore Gulf of Maine west of 70° 15'W. This provision was developed by several sectors to help managers better identify where vessels are fishing. It will allow for better identification of catch as vessels fishing inshore Gulf of Maine are unable to fish in a different stock area. For example, Gulf of Maine cod caught inshore cannot be mis-reported as Georges Bank cod. This provision would not apply to a vessel with an observer or at-sea monitor on board because the observer records catch location.

3.1.1 No Action Alternative 1

Under the No Action for Alternative 1, NMFS would not approve one or more sector operations plans. Therefore, vessels associated with these disapproved sectors would return to, or remain in, the common pool where they would fish under DAS regulations for FY 2013.

Table 3.1-1
Summary of the All Sector Operations Plans for Fishing Year 2013

Sector Name	# of Active Vessels	# of Permits	Primary Ports	Primary Fishing Grounds	Estimated Gear Types and Relative % of Use
Sustainable Harvest Sector (SHS) 1	TBD4	40	Portland, ME; Gloucester, MA; Boston , MA; New Bedford , MA	Gulf of Maine Inshore Georges Bank Offshore Georges Bank Southern New England/Mid-Atlantic	Trawl: 95% Gillnet: 5%
SHS 3	0*	TBD	Portland, ME; Gloucester, MA; Boston , MA; New Bedford , MA	Gulf of Maine Inshore Georges Bank Offshore Georges Bank Southern New England/Mid-Atlantic	Trawl: 100%
Maine Coast Sector (MCS) (*formerly Port Clyde Community Groundfish Sector*)	16	47	Portland, ME; Port Clyde, ME; Kennebunkport, ME; Harpswell, ME	Gulf of Maine Inshore Georges Bank Offshore Georges Bank	Trawl: 41% Gillnet: 59%
Fixed Gear Sector (FGS)	28	108	Chatham, MA; Harwich, MA	Gulf of Maine Inshore Georges Bank Offshore Georges Bank Southern New England/Mid-Atlantic	Trawl: 4% Gillnet: 45% Hook Gear: 36%
Northeast Coastal Communities Sector (NCCS)	8	26	Boothbay Harbor, ME; Portland, ME; New Bedford, MA; Menemsha, MA; Marshfield, MA; Sandwich, MA. Southwest Harbor, ME; Stonington, ME; Port Clyde, ME;	Gulf of Maine Inshore Georges Bank Offshore Georges Bank	Trawl: 25% Hook Gear: 75%
Northeast Fishery Sector (NEFS) 2	42	81	Gloucester, MA; Boston, MA, Newburyport, MA; Rockport, MA; Seabrook, NH, Portsmouth, NH	Gulf of Maine Inshore Georges Bank Offshore Georges Bank Southern New England/Mid Atlantic	Trawl: 100%
NEFS 3	35	80	Gloucester, MA	Gulf of Maine Inshore Georges Bank Offshore Georges Bank Southern New England/Mid-Atlantic	Gillnet: 45% Hook Gear: 23% Trawl: 2% Pot/Trap: 20%
NEFS 4	0*	49	N/A	N/A	N/A

NEFS 5	27	34	Point Judith, RI	Inshore Georges Bank Offshore Georges Bank Southern New England/Mid-Atlantic	Trawl: 93% Gillnet: 7%
NEFS 6	4	21	Boston, MA; Gloucester, MA; New Bedford, MA	Gulf of Maine Inshore Georges Bank Offshore Georges Bank Southern New England/Mid-Atlantic	Trawl: 100%
NEFS 7	10	23	New Bedford, MA, Point Judith, RI, Nantucket, MA, Montauk, NY	Gulf of Maine Inshore Georges Bank Offshore Georges Bank Southern New England/Mid-Atlantic	Trawl: 80% Gillnet: 20%
NEFS 8	6	20	New Bedford, MA	Gulf of Maine Inshore Georges Bank Offshore Georges Bank Southern New England/Mid-Atlantic	Trawl: 100%
NEFS 9	23	60	New Bedford, MA	Gulf of Maine Inshore Georges Bank Offshore Georges Bank Southern New England/Mid-Atlantic	Trawl: 100%
NEFS 10	19	44	Scituate, MA; Plymouth, MA; Marshfield, MA; Chatham, MA; Sandwich, MA; Boston, MA; Gloucester, MA; New Bedford, MA	Gulf of Maine Inshore Georges Bank Southern New England/Mid-Atlantic	Trawl: 46% Gillnets: 42% Hook: 2%
NEFS 11	20	42	Portsmouth, NH; Seabrook, NH; Rye, NH	Gulf of Maine Southern New England/Mid-Atlantic	Trawl: 15% Gillnet: 85%
NEFS 12	6	11	Portsmouth, NH; Seabrook, NH	Gulf of Maine Inshore Georges Bank	Trawl: 65% Gillnet: 30% Hook: 5%
NEFS 13	8	54	New Bedford, MA; Gloucester, MA; Point Judith, RI;	Gulf of Maine Inshore Georges Bank Offshore Georges Bank Southern New England/Mid-Atlantic	Trawl: 100%
Sector Wide	**TBD**	**TBD**	**Boston, MA; Gloucester, MA; New Bedford, MA; Chatham, MA;Harwich, MA; Scituate, MA; Marshfield, MA; Plymouth, MA; Rockport, MA; Sandwich, MA; Menemsha, MA; Newburyport, MA; Point Judith, RI; Newport, RI; Portland, ME; Port Clyde, ME; Kennebunkport, ME; Boothbay Harbor, ME; Harpswell, ME;** Stonington, ME ; Southwest Harbor, ME **; Portsmouth, NH; Rye, NH; Seabrook, NH; Montauk, NY**	**Gulf of Maine Inshore Georges Bank Offshore Georges Bank Southern New England/Mid-Atlantic**	

Notes: * = SHS 3 and NEFC 4 do not have active vessels at this time. NEFS 4 is a lease only sector and therefore gears, fishing grounds and ports are not listed. NEFS 4 will lease the majority of its ACE to NEFS 2 & 3. SHS 3 is not a lease-only sector and may have active vessels prior to the roster deadline or at any point during the fishing year.
Refer to the sector operations plans (http://www.regulations.gov) for a more detailed description of individual sectors.

Table 3.1-2
Summary of the All Sector ACEs as Percent of ACLs for Fishing Year 2012 (Note: Previous Fishing Year)

Sector Name	GB Cod	GOM Cod	GB Haddock	GOM Haddock	GB Yellowtail Flounder	SNE/MA Yellowtail Flounder	CC/GOM Yellowtail Flounder	American Plaice	Witch Flounder	GB Winter Flounder	GOM Winter Flounder	Redfish	White Hake	Pollock
Fixed Gear Sector	28.32	2.22	6.35	1.35	0.01	0.30	1.91	0.55	0.84	0.03	2.22	2.90	5.86	7.86
Maine	0.11	0.42	0.01	0.08	0.00	0.00	0.31	0.64	0.34	0.00	0.87	0.02	0.18	0.22
NCCS	0.17	0.73	0.12	0.34	0.84	0.73	0.61	0.15	0.22	0.07	0.90	0.44	0.86	0.45
NEFS 2	5.88	18.27	11.63	16.50	1.87	1.41	19.04	7.93	12.76	3.16	18.25	15.87	6.28	12.13
NEFS 3	1.27	15.70	0.15	9.91	0.01	0.36	9.23	4.27	2.99	0.03	10.70	1.38	4.80	7.07
NEFS 4	4.12	8.63	5.31	8.28	2.16	2.36	5.06	9.26	8.48	0.69	5.11	6.63	8.00	5.83
NEFS 5	1.77	0.09	3.35	0.31	6.31	22.14	0.64	1.15	1.32	1.79	0.09	0.24	0.20	0.26
NEFS 6	2.85	2.48	2.92	3.81	2.70	5.17	2.87	3.80	5.09	1.42	3.69	5.31	3.91	3.29
NEFS 7	4.39	0.43	3.74	0.56	9.29	3.93	2.68	3.41	3.07	11.38	0.86	0.54	0.74	0.69
NEFS 8	6.14	0.50	5.72	0.21	10.94	5.60	6.43	1.65	2.55	14.57	3.39	0.54	0.51	0.60
NEFS 9	14.66	1.74	11.97	4.79	27.55	8.15	10.65	8.38	8.36	42.80	2.44	5.92	4.17	4.24
NEFS 10	1.19	5.99	0.31	2.61	0.02	0.55	14.55	2.09	3.70	0.02	29.39	0.57	0.98	1.52
NEFS 11	0.40	12.27	0.04	2.39	0.00	0.02	2.13	1.38	1.47	0.00	2.00	0.96	2.43	6.57
NEFS 12	0.02	2.43	0.00	0.86	0.00	0.00	0.48	0.75	0.61	0.00	0.32	1.06	2.50	2.96
NEFS 13	6.84	0.75	13.82	0.88	16.65	14.12	3.46	3.76	4.79	5.39	1.59	3.88	1.71	2.17
Port Clyde Community Groundfish Sector	0.11	4.54	0.04	2.52	0.00	0.66	0.94	7.42	4.99	0.00	1.40	2.49	4.26	3.73
Sustainable Harvest Sector 1	18.78	19.84	32.20	42.37	12.55	8.09	12.76	39.51	34.42	15.90	9.57	50.24	51.01	39.52
Sustainable Harvest Sector 3	0.43	0.56	0.37	0.28	0.44	2.89	2.32	0.80	1.20	0.17	2.50	0.22	0.23	0.07
Tri-State Sector	0.68	0.36	1.45	0.44	7.24	1.35	1.33	0.93	0.85	1.92	1.40	0.00	0.02	0.03
All Sector Combined	**98.11**	**97.92**	**99.49**	**98.51**	**98.57**	**77.83**	**97.41**	**97.84**	**98.05**	**99.35**	**96.68**	**99.20**	**98.62**	**99.21**

3.2 ALTERNATIVE 2 – SECTOR SPECIFIC EXEMPTIONS

In addition to the universal exemptions approved in Amendment 16, sectors requested a total of 26 sector specific exemptions from Northeast Multispecies regulations in their FY 2013 operations plans that NMFS is considering for approval. Alternative 2 is the approval of one or more sector specific exemption for FY 2013.

NMFS will only consider Alternative 2 if it approves at least one sector operations plan from Alternative 1. For the purposes of this EA, NMFS analyzed the impacts of each exemption for approval to all sectors (see Section 5.1). However, NMFS would independently approve or disapprove each individual exemption in the final rule. If approved, these exemptions would only apply to FY 2013 sectors which request them. Table 3.2-1 lists which sectors have currently requested each exemption. Sectors can add most approved exemptions at any point during the fishing year. However, certain exemptions need to be in place for the entire year.

For the purposes of this EA, NMFS analyzed the impacts of each exemption for approval to all sectors

Sectors requested some exemptions which NMFS previously approved in FY 2010, FY 2011, and FY 2012. Sectors still have to request previously approved exemptions in their FY 2013 operations plans to allow NMFS to evaluate each exemption using updated information. NMFS typically approved FY 2010 through FY 2012 sector specific-exemptions if they were effort control measures or administrative requirements that would no longer be necessary when fishing under an ACE. These exemptions generally increased the operational flexibility and profit for fishermen in sectors while limiting overall fishing mortality. In addition to those exemptions requested and approved for FY 2010 through FY 2012, sectors requested novel exemptions for FY 2013. The remainder of this section describes all of the sector specific exemptions requested by sectors in the FY 2013 sector operations plans.

Exemption	SHS 1	SHS 3	MCS	FGS	NCCS	NEFS 2	NEFS 3	NEFS 4	NEFS 5	NEFS 6	NEFS 7	NEFS 8	NEFS 9	NEFS 10	NEFS 11	NEFS 12	NEFS 13
120 day Gillnet Block	X	X	X	X	X		X			X	X	X		X	X	X	X
20 day Spawning Block	X	X	X	X	X		X		X	X	X	X	X	X	X	X	X
Gillnet Limit	X	X	X	X	X		X			X	X	X		X	X	X	X
Prohibition on a Vessel Hauling another Vessel's Gillnet Gear	X	X	X	X	X		X			X	X	X		X	X	X	X
50-net Limit with DAS	X	X	X	X			X			X	X	X		X	X	X	X
Limit on # of Hooks	X	X		X	X		X			X	X	X		X	X	X	X
DAS Leasing Size and HP Restrictions	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
GOM Haddock Sink Gillnet Exemption	X	X	X	X			X			X	X	X		X	X	X	X
Prohibition on Discarding	X	X		X	X					X	X	X		X	X	X	X
Daily catch reporting by Sector Managers for Sector Participating in the CA I Hook Gear Haddock SAP	X	X		X	X	X				X	X	X		X	X	X	X
Gear Requirements in the US/CA Area	X	X		X		X			X	X	X	X	X	X	X	X	X
Requirement to Power a VMS While at the Dock	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
DSM Requirements for Vessels Fishing West of 72°30' w. long	X	X		X			X		X	X	X	X		X	X	X	X
DSM Requirements for Handgear A-Permitted Sector Vessels				X	X		X			X	X	X		X	X	X	X
DSM Requirements for Monkfish trips in the monkfish SFMA	X	X		X			X		X	X	X	X		X	X	X	X
Prohibition on Fishing Inside and Outside the Closed Area I Hook Gear Haddock SAP while on the Same Trip	X	X		X						X	X	X		X	X	X	X
Prohibition on a Vessel Hauling Another Vessel's Hook Gear	X	X		X	X					X	X	X		X	X	X	X
Requirement to Declare Intent to Fish in the Eastern US/CA Area Haddock SAP and CA II Yellowtail/Haddock SAP Prior to Departure	X	X		X		X			X	X	X	X	X	X	X	X	X
DSM Requirements for Jig Vessels					X												
Seasonal Restrictions for the Eastern US/CA Haddock SAP (Year Round Access)	X	X															
Seasonal Restrictions for the CA II YT/Haddock SAP (Year Round Access)	X	X															
Multi-BSA Exemption When Observer Onboard									X	X	X	X	X		X	X	X
6.5 inch Trawl Mesh Size Requirement to Target Small Mesh Multispecies While on a Sector Trip, When Trip is Observed						X			X	X				X	X	X	X
EFP-like Exemption for Sampling				X	X												
4.5-inch Mesh Size or Greater for Directed Redfish Trips (requesting sectors TBD for final EA)	X	X	X	X		X			X	X	X	X	X	X	X	X	X

What sector specific exemptions is NMFS considering for FY 2013?

1. *120-Day Block Requirement Out of the Fishery for Day Gillnet Vessels*

Each Northeast Multispecies Day gillnet vessel must take 120 days out of the non-exempt gillnet fishery (50 CFR § 648.82(j)(1)(ii)). Each block out is for a minimum of 7 consecutive days. Additionally, at least 21 of the 120 days must occur between June 1 and September 30.

The 120-Day block out requirement helped ensure that management measures for Day gillnet vessels were comparable to effort controls placed on other fishing gear types. The summer months were chosen because that was a time when gillnet fishing was most prevalent. FW 20 to the FMP (61 FR 55774) implemented the requirement on May 1, 1997.

Sectors requested that their Day gillnet vessels be exempt from the 120-day block out requirement. Sectors wish to increase their operational flexibility and efficiency with this exemption by having the opportunity to fish year-round.

2. *20-Day Spawning Block*

Vessels must declare out of the Northeast Multispecies DAS program for a 20-day period each calendar year between March 1 and May 31 (§ 648.82(g)). Spawning is most prevalent in the Gulf Of Maine during this time. Therefore, the 20-Day spawning block serves as a mortality-control measure which provides protection to spawning aggregations.

Sectors requested that their vessels be exempt from the 20-day spawning block requirement. Sectors seek to increase their operational flexibility and efficiency with this exemption by having the opportunity to fish year-round.

3. *Limitation on the Number of Gillnets for Day Gillnet Vessels*

Net limits are in place for Day gillnet vessels in the groundfish regulated mesh areas (RMA). Day gillnet vessels can't fish more than 100 gillnets (of which no more than 50 can be roundfish gillnets) in the GOM RMA (§ 648.80(a)(3)(iv)); 50 gillnets in the GB RMA (§ 648.80(a)(4)(iv)); and 75 gillnets in the Southern New England ((§ 648.80(b)(2)(iv)) and Mid-Atlantic RMAs (§ 648.80(c)(2)(v)).

To enforce these regulations each gillnet has either one or two tags attached to it. The number of tags depends on the type of net and RMA fished. These restrictions prevent an uncontrolled increase in the number of nets fished. Such an uncontrolled increase would undermine the applicable DAS effort controls. The gillnet limit was implemented in 1996 by Amendment 7 and revised in Amendment 13.

Sectors requested that their Day gillnet vessels be exempt from gillnet limits. Under this exemption Day gillnet vessels would be able to use up to 150 nets total regardless of RMA and could mark their gear with one tag per net. A vessel fishing in the GOM RMA may use this exemption seasonally, but will be restricted to the 100 net gillnet limit in blocks 124 and 125 in May, and in blocks 132 and 133 in June. A vessel fishing in GB RMA, SNE RMA, and MA RMA, the GOM outside of these times and areas have no additional restrictions. Please note this exemption was modified from 150 nets total in the GOM in the draft EA to 100 nets total in the GOM after public comment concerning GOM cod. Sectors seek to increase landings per trip with this exemption.

4. *Prohibition on a Vessel Hauling another Vessel's Gillnet Gear*

Current regulations prohibit one vessel from hauling another vessel's gillnet gear (§648.14(k)(6)(ii)(A) and §648.84). The regulations help enforce existing regulations since a single vessel is associated with each set of gear.

Sectors requested an exemption to the rules prohibiting hauling another vessels gear. With this exemption fishermen within the same sector could haul each other's gillnet gear. However, all vessels participating

in “community” fixed gear would be jointly liable for any violations associated with that gear. Sectors seek to increase their operational flexibility and potentially decrease expenses with this exemption.

5. *Limitation on the Number of Gillnets that May be Hauled on George's Bank When Fishing Under a Groundfish/Monkfish DAS*

Day gillnet vessels fishing on a groundfish DAS can't possess, deploy, fish, or haul more than 50 nets on Georges Bank (§ 648.80(a)(4)(iv)). As a result, these regulations limit the number of gillnets vessels can haul on Georges Bank when fishing under a groundfish/monkfish DAS. Amendment 13 implemented this limit as a groundfish mortality control.

Sectors requested an exemption to Georges Bank net hauling limits. The exemption would not permit the use of additional nets. Dually permitted sector vessels would simply haul nets they deployed in accordance to the Monkfish FMP more efficiently. Sectors seek to increase landings per trip with this exemption.

6. *Limitation on the Number of Hooks that may be Fished*

Vessels can't fish or possess more than 2,000 rigged hooks in the GOM RMA (§648.80(a)(3)(iv)(B)(2)), more than 3,600 rigged hooks in the GB RMA (§648.80(a)(4)(iv)(B)(2), more than 2,000 rigged hooks in the SNE RMA (§648.80(b)(2)(iv)(B)(1)), or more than 4,500 rigged hooks in the MA RMA (§648.80(c)(2)(v)(B)(1))). A 2002 interim action (67 FR 50292) initially implemented these hook limits as a way to control fishing effort. Amendment 13 made these limits permanent.

Sectors requested that their vessels be exempt from hook limits. With this exemption sectors seek to increase landings per trip by increasing the number of hook days associated with each trip.

7. *Length and Horsepower Restrictions on DAS Leasing*

Amendment 16 exempts sector vessels from the requirement to use Northeast Multispecies DAS to harvest groundfish. However, some sector vessels would still need to use Northeast Multispecies DAS when fishing for monkfish. The Monkfish FMP includes a requirement that limited access monkfish Category C and D vessels harvesting more than the incidental monkfish possession limit must fish under both a monkfish and a groundfish DAS. Therefore, sector vessels still use and lease Northeast Multispecies DAS. Multispecies vessels can currently lease DAS from other vessels provided that the vessel receiving the DAS has no more than 20% greater horsepower and/or is no more than 10% greater in baseline length of the lessee vessel (§648.82(k)(4)(ix). The DAS leasing restrictions maintain the character of the fleet and control groundfish fishing effort through vessel characteristics.

Sectors requested an exemption to allow DAS leasing within and between approved sectors that is not restricted by vessel characteristics. This leasing would occur for the purpose of complying with the Monkfish FMP. Sectors seek to expand the DAS leasing pool with this exemption.

8. *GOM Sink Gillnet Mesh Exemption*

The minimum mesh size for gillnets in the GOM RMA is 6.5 inches (16.51 cm) (§ 648.80(a)(3)(iv)). Minimum mesh size requirements reduce overall mortality on groundfish stocks by reducing discards and improving the survival of sub-legal groundfish. This exemption would allow sector vessels to use 6-inch (15.24-cm) mesh stand-up gillnets in the GOM RMA from January 1, 2013, to May 31, 2013. Sectors requested this exemption to increase haddock catch rates. The January through May timeline is consistent with the pilot program originally proposed in Amendment 16. It is also the time period when haddock are most available in the GOM.

This exemption would prohibit using tie-down gillnets on trips in the GOM. However, sector vessels could still transit the GOM RMA with tie-down gillnets if the nets are properly stowed and not available for immediate use (§ 648.23(b)).

Day gillnets vessels participating in a sector are restricted to the limit of 50 stand-up sink gillnets during this period. However, Day gillnet vessels granted both the Sink Gillnet Mesh Size Restrictions in the

GOM exemption and the general net limit exemption (exemption 3 above) could fish up to 150 stand-up sink gillnets in the GOM RMA during this period (up to 150 nets total in all RMAs). To improve enforceability and increase flexibility, vessels using this exemption would declare their intent on a trip-by-trip basis through a VMS form. Please note there is no limit on the number of nets that participating Trip gillnet vessels are able to fish with, possess, haul, or deploy, during this period. This is because Trip gillnet vessels are required to remove all gillnet gear from the water before returning to port at the end of a fishing trip.

9. Prohibition on Discarding

Sector vessels may not discard any legal-sized fish of the 14 allocated stocks while at sea (§ 648.87 (b)(1)(v)(A)). Amendment 16 contained this provision to ensure accurate monitoring of sector ACE.

Sectors requested a partial exemption from this prohibition due to operational and safety concerns. Vessels store the unmarketable catch on deck separate from food grade product. This takes up valuable deck and hold space while potentially creating unsafe working conditions for sector vessels at sea. Dealers typically absorb the cost associated with disposing of the unmarketable fish. The cost varies according to the amount and condition of the fish. The burden to the dealer is in labor and record keeping. This burden takes approximately 15 minutes per offload. Dealers often sell some of the damaged fish as bait to partially offset the cost of disposal. If high discard trips became a recurring event the dealer may decide to pass off some of the costs to the fisherman. However, this scenario is not likely to occur.

This regulatory exemption defines, "unmarketable" fish as "any legal-sized fish the vessel owner/captain elects not to retain because of poor quality as a result of damage prior to, or from, harvest." The determination of what fish to discard is at the discretion of the vessel operator, but must be based on physical damage to the fish.

All vessels in a sector opting for this exemption will be required to discard legal-sized unmarketable fish at sea on all trips, with or without an observer on board. All legal-sized unmarketable allocated fish will be accounted for in the overall sector-specific discard rates through observer and at-sea monitor coverage. This is the same way discards of undersized fish are currently incorporated.

NMFS will modify the sector-specific discard rates for each sector with this exemption due to a change in the treatment of unmarketable fish (from landings to discards). Once the discarding exemption takes effect and the discard rates have been modified, unmarketable fish discarded by the sector's vessels on observed trips will be deducted from the sector's ACE and incorporated into the sector's discard rates to account for discarding on unobserved trips.

There is a financial incentive for vessel operators to retain and market as much of their catch of allocated stocks as possible. Since discarded fish still counts against the sector's ACE and are incorporated into the sector's discard rates, retaining fish maximizes the value a sector's ACE.

This exemption would allow sector vessels to discard legal-sized unmarketable fish at sea. This exemption seeks to alleviate operational and safety concerns for sector vessels.

10. Daily catch reporting by Sector Managers for Sector Participating in the Closed Area I Hook Gear Haddock Special Access Program

Sector vessels submit daily reports to the Sector Manager while fishing in the Closed Area I Hook Gear Haddock SAP. The Sector Manager then compiles this information and submits it to NMFS (§ 648.85(b)(7)(v)(C)). Sectors can request an exemption from SAP reporting requirements but can't request an exemption from any other reporting requirements.

Framework 40A implemented this reporting requirement to help NMFS monitor quota in real time. Amendment 16 alleviated reporting requirements for sector vessels participating in other Special

Management Programs (SMPs). However, reporting requirements remained in place for the CA I Hook Gear Haddock SAP. This allowed NMFS to monitor the overall haddock TAC, which applies to sector and common pool vessels fishing in this SAP.

This exemption would relax the requirement that vessels submit a daily catch report to the Sector Manager. Instead, the sector would require each vessel to submit their own report to NMFS via VMS. This exemption seeks to reduce the administrative burden on the Sector Manager. Further, because sector vessels must already submit VMS catch reports for operating in one or more Broad Stock Areas on the same trip, requiring similar reporting for the Closed Area I Hook Gear Haddock SAP would maintain consistency.

11. Gear Requirements in the U.S./Canada Management Area

The United States and Canada coordinate the management of several transboundary fisheries stocks in the U.S./Canada Management Area. These stocks include GB cod, GB haddock, and GB yellowtail flounder. The U.S./Canada area consists of Eastern and Western sections. GB cod and GB haddock generally occur in the Eastern U.S./Canada Area while GB yellowtail flounder occur across the full U.S./Canada Management Area. The U.S./Canada Sharing Agreement establishes the amount of fish each country can harvest. The management objective for these shared stocks is to achieve but not exceed the U.S. fraction of the harvest (NEFMC 2003).

Current regulations require that a NE multispecies vessel fishing with trawl gear in the Eastern U.S./Canada Area fish with a Ruhle trawl, a haddock separator trawl, or a flounder trawl net (§ 648.85(a)(3)(iii)). Amendment 13 included provisions to constrain U.S. catches of the three shared stocks (69 FR 22906, 4/27/04). Vessels tend to reach the TAC for GB cod first. Therefore, to help avoid exceeding the U.S. fraction, Amendment 13 required vessels to use gear designed to minimize the catch of cod. Amendment 13 restricted the use of trawl gear so that only the haddock separator trawl and the flounder trawl net could be in the Eastern U.S./Canada Area. Use of the Ruhle trawl, which also minimizes cod catch, was later approved through an in-season action in 2008 (73 FR 53158, 8/15/08), extended through an interim rule in 2009 (74 FR 17030, 4/13/09; 74 FR 55158, 10/27/09), and made permanent by Amendment 16.

Application of this gear requirement does not apply to the Western US/Canada Area (69 FR 22906, 4/27/04). Gear requirements in the Western U.S./Canada Area are not necessary since each of these three gear types affect cod selectivity, and the cod TAC is specific only to the Eastern U.S./Canada Area.

Sectors requested an exemption to allow their vessels to use any type of trawling gear while fishing in the U.S./Canada area. Sectors seek to increase catch rates of all allocated stocks with this exemption.

12. Requirement to Power a VMS While at the Dock

Vessels use a VMS unit to submit area declarations, hail reports, and catch information to NMFS. The VMS enables NMFS to monitor catch, DAS use, gear requirements, and trip limits (75 FR 18262, 4/9/10).

Per § 648.10(b)(4), groundfish vessels must have an approved and operational VMS on board:

- to fish on a Northeast Multispecies DAS
- to fish on a sector trip, or
- when a common pool vessel has declared their intent to fish in more than one broad stock area on the same trip.

Once a multispecies vessel declares its first DAS or sector trip, it must use a properly functioning VMS for the remainder of the fishing year. The VMS unit must transmit accurate positional information (i.e., polling) at least every hour, 24 hours per day, throughout the year (§ 648.10(c)(1)(i)). A limited access Northeast Multispecies vessel may power down its VMS only when done in accordance with the power down rules specified at § 648.10(c)(2).

Vessels can power down a VMS:

- if the vessel will be out of the water for more than 72 consecutive hours, or
- if the vessel does not participate in any fisheries and will not move from the dock/mooring for a minimum period of 30 consecutive days.

Powering down a VMS requires a letter of exemption from the NMFS Regional Administrator.

Sectors requested an exemption from keeping the VMS units powered while tied to the dock or on a mooring. This exemption seeks to reduce costs and energy consumption for sector vessels. Vessels granted this exemption and electing to power down must submit the appropriate VMS declaration, as specified on the sector's letter of authorization. Since sectors may only request exemptions from NE multispecies regulations, this exemption only applies to NE multispecies requirements. Therefore, if the vessel has permits for other FMPs, it must continue to comply with the requirements of those FMPs. For instance, a vessel in a sector granted this exemption that has a surfclam/ocean quahog permit would still need to have active VMS 24 hours a day, 7 days a week. Sector vessels would not be fishing for groundfish under DAS or groundfish trip limits. Therefore, they did not request an exemption from these non-groundfish provisions.

13. DSM Requirements for Vessels Fishing West of 72°30' W. long.

Amendment 13 adopted the concept that sectors are responsible for monitoring sector catch. However, it provided few details for that requirement. Amendment 16 formalized this requirement by specifying that a sector operations plan must detail how a sector will monitor its catch to ensure it does not exceed the sector allocation. To accomplish this task Amendment 16 further specified that sectors must develop and implement an independent third-party Dockside Monitoring Program (DSM). DSM would allow sectors to monitor landings from sector trips and ACE utilization. The DSM program was implemented to ensure that catch is accurately documented and that sectors are monitored equally. DSM requirements are specified at § 648.87(b). Although dockside monitoring provisions within Framework 45 required dockside monitors to inspect fish holds, NMFS later determined that the pre-landing hail required of vessels provided an efficient and effective means for observation and enforcement of landings. NMFS eliminated the requirement for monitors to inspect fish holds through an interim final correction amendment, which filed on July 18, 2011 (76 FR 42577).

Currently, Amendment 16 to the FMP requires the fishing industry to solely fund dockside monitoring beginning at the start of fishing year 2013 (i.e., May 1, 2013). This requirement will become effective then, unless amended by the Council in a future management action.

Upon receiving exemption requests to the DSM requirements for vessels fishing in southern New England and Mid-Atlantic waters, the Regional Administrator, in a September 1, 2010 letter to the Council, requested that the Council consider establishing a geographic boundary outside of which DSM would not be required. At its November 18, 2010, meeting, the Council considered this request, and supported removal of DSM from the list of prohibited exemptions to allow sectors to request geographic- and gear-based exemptions from DSM.

Sectors requested an exemption from DSM requirements for vessels fishing west of 72°30' W. long. Sectors noted that a small amount groundfish bycatch has been observed in these areas, and monitoring of such trips is not a beneficial use of financial resources. This exemption seeks to alleviate DSM burdens and cost for sector vessels on trips which do not catch much groundfish. Please note that FW 48 contains an alternative that would remove the requirement for DSM.

14. DSM Requirements for Handgear A-Permitted Sector Vessels

As explained in exemption number 13, Amendment 16 formalized dockside monitoring requirements. DSM requirements are specified at § 648.87(b).Framework Adjustment 45 removed DSM requirements for Handgear A- and B-permitted vessels, as well as for Small Vessel-permitted vessels (Category HA,

HB and C, respectively) in the common pool. The small quantities of groundfish landed by these permit categories made monitoring such common pool trips uneconomical.

Sectors requested an exemption from DSM requirements for limited access Handgear A-permitted sector vessels. NMFS uses trip start and trip end hails to deploy the enforcement resources which monitor offloads. Therefore, since these are reporting requirements, vessels utilizing this exemption will need to comply with all hail requirements. This exemption seeks to alleviate DSM burdens and cost for sector Handgear A vessels since these vessels traditionally catch small quantities of groundfish. Please note that FW 48 contains an alternative that would remove the requirement for DSM.

15. *DSM Requirements for Monkfish trips in the monkfish Southern Fishery Management Area (SFMA)*

As explained in exemption number 13, Amendment 16 formalized dockside monitoring requirements. DSM requirements are specified at § 648.87(b). Directed monkfish trips are considered sector trips unless a vessel is fishing in a Northeast Multispecies exempted fishery (§ 648.80). These are sector trips since gear used on such trips can catch and retain groundfish.

Vessels have different mesh requirements for their nets when fishing in the SFMA under a Northeast Multispecies DAS or sector trip, compared to fishing under a monkfish DAS. Table 3.3-2 summarizes the mesh requirements when fishing in the SFMA. Vessels issued both a monkfish limited access permit and a Northeast Multispecies limited access permit must comply with the more restrictive set of management measures. Therefore, a vessel that is fishing under concurrent monkfish DAS and Northeast Multispecies DAS on a sector trip must abide by the more restrictive monkfish gear requirements.

Sectors requested an exemption from DSM for sector trips declared into the monkfish SFMA when fishing on a concurrent monkfish/NE multispecies. As part of this exemption sector vessels must:

1. fish the entirety of its trip in the SFMA

2. properly stow non-conforming gear (§ 648.23(b))

3. comply with dockside monitoring hail requirements (§ 648.87(b)(5)(i)(A))

4. determine with their dockside monitoring provider how to notify their provider that a given sector trip is utilizing this exemption.

Sector trips declared into the SFMA monkfish fishery using 10-inch (25.4-cm) or larger mesh, as required in the Monkfish FMP, land only small amounts of groundfish. Therefore, sectors seek this exemption to alleviate DSM burdens and cost on trips which typically land small quantities of groundfish. Please note that FW 48 contains an alternative that would remove the requirement for DSM.

Table 3.3-2 Mesh Requirements when Fishing in the Southern Fishery Management Area			
Fishing Under a…	**Gear**	**Mesh Requirements**	**Regulation Citation**
Northeast Multispecies DAS or sector trip	Trawl	a minimum 6-inch (15.2-cm) diamond mesh **or** 6.5-inch (16.5-cm) square mesh through the body and 6.5-inch (16.5-cm) square or diamond mesh applied to the codend of a trawl net	§ 648.80(b)(2)(i)
	Gillnet	minimum mesh size of 6.5 inches (16.5 cm) throughout the entire net	§ 648.80(b)(2)(iv)
Monkfish DAS	Trawl	minimum 10-inch (25.4-cm) square or 12-inch (30.5-cm) diamond mesh throughout the codend and for at least 45 continuous meshes forward of the terminus of the net	§ 648.91(c)(1)(i)
	Gillnet	minimum diamond mesh size of 10 inches (25.4 cm) or larger	§ 648.91(c)(1)(iii)

16. *Prohibition on Fishing Inside and Outside the Closed Area I Hook Gear Haddock SAP while on the Same Trip*

Multispecies vessels fishing on a trip within the Closed Area I Hook Gear Haddock SAP are prohibited from deploying fishing gear outside of the SAP on the same trip when they are declared into the SAP (§ 648.85(b)(7)(ii)(G)). This restriction was established to avoid potential quota monitoring and enforcement complications that could arise when a vessel fishes both inside and outside the SAP on the same trip (Framework Adjustment 40-A, 2004). This exemption would allow sectors vessels to fish both inside and outside the Closed Area I Hook Gear Haddock SAP on the same trip. To identify catch from inside and outside the SAP on the same trip, sector vessels would be required to send NMFS a catch report that specifically identifies GB Haddock (and any other shared allocation) catch from inside the SAP within 24 hours of landing or prior to the end of the trip. Sectors wish to increase their operational flexibility and efficiency with this exemption by having the opportunity to fish both inside and outside the SAP on the same trip.

17. *Prohibition on a Vessel Hauling Another Vessel's Hook Gear*

Current regulations prohibit one vessel from hauling another vessel's hook gear (§§ 648.14(k)(6)(ii)(B)). The regulations facilitate the enforcement of existing regulations as a single vessel is associated with each set of gear. Sectors have requested an exemption to the rules prohibiting hauling another vessels gear. The exemption would allow fishermen from within the same sector to haul each other's hook gear. However, all vessels participating in "community" fixed gear would be jointly liable for any violations associated with that gear. Additionally, each member intending to haul the same gear will be required to mark the gear consistent with §§ 648.14(k)(6)(ii)(B) and 648.84(a).

18. *Requirement to Declare Intent to Fish in the Eastern US/CA Area Haddock SAP and CA II Yellowtail/Haddock SAP Prior to Departure.*

Multispecies vessels are required to declare that they will be fishing in either the Eastern US/CA Haddock SAP or the CA II Yellowtail/Haddock SAP prior to leaving the dock (§ 648.85(b)(8)(v)(D) and § 648.85(b)(3)(v)). Framework 40A (2004) implemented this measure so that vessels fishing strictly in

those areas could be credited days-at-sea (DAS) for their transit time to and from those SAPs. Sectors are requesting an exemption from having to declare their intent to fish in those areas because they are no longer limited by multispecies DAS and their catch is limited to their ACE. Therefore, this exemption will allow sector vessels to declare their intent to fish in these SAPs while at sea. Sectors seek to increase their efficiency with this exemption.

19. DSM Requirements for Jig Vessels

As explained in exemption number 13, Amendment 16 formalized dockside monitoring requirements. Jigging, with respect to the NE multispecies fishery, is defined at § 648.2 as fishing with handgear, handline, or rod and reel using a jig, which is a weighted object attached to the bottom of the line used to sink the line and/or imitate a baitfish, which is moved with an up and down motion. This jig gear is not exempted gear, and therefore sector trips utilizing this gear are required to have DSM.

The Northeast Coastal Communities Sector requested this exemption, asserting that if DAS permitted vessels elect to use jig fishing gear for a trip, they will use the same gear as a handgear A permitted vessel, and should be allowed the same exemptions. NCCS further asserts that deploying DSM for jig fishermen is not cost effective. Please note that FW 48 contains an alternative that would remove the requirement for DSM.

20. Seasonal Restrictions for the Eastern US/CA Haddock SAP (Year Round Access)

Multispecies vessels may fish in the Eastern US/CA Haddock SAP from August 1 through December 31 (50 CFR § 648.85(b)(8)(iv). The SAP was created to allow vessels to target a healthy stock of haddock while minimizing bycatch of other stocks. In particular, the seasonal restriction was put in place to lower cod and winter flounder catch rates through Framework Adjustments 40-A and 42, respectively (Framework Adjustment 40-A, 2004; Framework Adjustment 42, 2006). Please note that some sectors requested this exemption for the entire fishing year and some requested that the exemption exclude access during March and April to be consistent with the Amendment 13 goal to protect spawning haddock. To capture the maximum time requested this exemption proposes to allow sector vessels to fish in the Eastern U.S./Canada Haddock SAP from May 1st through April 30th (i.e., the entire fishing year) so long as the sector has available ACE. This exemption is being proposed by NMFS to exclude the use of the standard otter trawl. The rationale for this prohibition on otter trawl is to ensure that, consistent with the Councils intent, vessels would target healthy stocks and avoid stocks such as GB Cod and GB yellowtail flounder.

Sectors requesting this exemption wish to increase their operational flexibility and efficiency. While this exemption was considered for FY 2012, NMFS disapproved it because it was unclear whether the Council intended to allow or prohibit access to these SAPs. The Council has subsequently discussed this exemption at its June 2012 Council meeting. The discussion resulted in a letter to NMFS dated June 22, 2012, indicating that it was the Council's intent to grant these exemptions to vessels, which would provide additional fishing opportunities for the NE multispecies fishery to target healthy stocks. Because of this, NMFS is allowing sector vessels to request exemption from the seasonal requirements of the SAPs.

21. Seasonal Restrictions for the CA II YT/Haddock SAP (Year Round Access)

Multispecies vessels can fish in the Closed Area II Yellowtail/Haddock SAP from July 1 through December 31 to target yellowtail flounder, and from August 1 through January 31 to target haddock (§ 648.85(b)(3)(iii)). The seasonal restrictions were established to allow vessels to target denser populations of yellowtail flounder and haddock while avoiding cod in the summer and spawning groundfish in the spring (Framework 40-A, 2004; Amendment 13, 2004). While Amendment 16 gave sectors an exemption from trip limits for this SAP, it did not adjust the seasonal restrictions. Please note that some sectors requested this exemption for the entire fishing year and some requested that the exemption exclude access during March and April to be consistent with the Amendment 13 goal to protect spawning haddock. To capture the maximum time requested this exemption proposes to allow sector vessels to fish in the SAP from May 1st through April 30th (i.e., the entire fishing year) so long as the sector has available ACE. This exemption is being proposed by NMFS to exclude the use of the standard otter trawl. The rationale for

this prohibition on otter trawl is to ensure that, consistent with the Councils intent, vessels would target healthy stocks and avoid stocks such as GB Cod and GB yellowtail flounder.

Sectors seek to increase their operational flexibility and efficiency with this exemption by having the opportunity to fish year-round in the SAP. While this exemption was considered for FY 2012, NMFS disapproved it because it was unclear whether the Council intended to allow or prohibit access to these SAPs. The Council has subsequently discussed this exemption at its June 2012 Council meeting. The discussion resulted in a letter to NMFS dated June 22, 2012, indicating that it was the Council's intent to grant these exemptions to vessels, which would provide additional fishing opportunities for the NE multispecies fishery to target healthy stocks. Because of this, NMFS is allowing sector vessels to request exemption from the seasonal requirements of the SAPs.

22. Multi-Broad Stock Area (BSA) Exemption When Observer Onboard

Amendment 16 prohibited all vessels from fishing for, possessing, or landing SNE/MA winter flounder, as defined in §648.85(b)(6)(v)(F), because projections based on GARM III data indicated that SNE/MA winter flounder was unlikely to rebuild by 2014. To provide the maximum flexibility for a vessel to fish in multiple broad stock areas, vessels may transit the SNE/MA winter flounder stock area with GOM or GB winter flounder on board the vessel, provided no additional fishing takes place, and that gear is stowed in accordance with the provisions of §648.23(b). Effectively, a vessel could fish for other species in the SNE/MA winter flounder stock area, but if they left that area and caught GOM or GB winter flounder, the vessel would be prohibited from fishing in the SNE/MA winter flounder stock area because it would be impossible to verify that the winter flounder on board the vessel originated from a different stock area.

Sectors have requested an exemption from the prohibition on fishing in the SNE/MA winter flounder stock area, when GOM or GB winter flounder is onboard the vessel, when either a NEFOP observer or an at-sea monitor is onboard. Because this exemption would require 100 percent observer or at-sea monitoring coverage and NMFS has limited funding to pay for observer and at-sea monitoring coverage, NMFS is proposing that industry fund 100% of the at-sea monitoring expenses when a vessel utilizes this exemption. Vessels interested in utilizing this exemption on a trip will not have the opportunity to request a federally-funded observer or at-sea monitor.

Data collection protocols include documentation of catch (both landings and discards), as well as stock area, which could provide the data necessary to differentiate the catch of winter flounder and correctly apportion the winter flounder onboard to the appropriate stock area. This exemption seeks to increase flexibility and efficiency of fishing vessels to move freely between BSAs, increase gross revenue per trip, and decrease vessel operating costs.

23. 6.5 inch Trawl Mesh Size Requirement to Target Small Mesh Species While on a Sector Trip, When Trip is Observed

Minimum mesh size restrictions for the GOM, GB, and SNE RMAs (§ 648.80(a)(3)(i), (a)(4)(i), (b)(2)(i)) were implemented under Amendment 13 (69 FR 22906, 4/27/04) in conjunction with other management measures, including FW 42, to reduce overall mortality on groundfish stocks, change the selection pattern of the fishery to target larger fish, improve survival of sublegal fish, and allow sublegal fish more opportunity to spawn before entering the fishery (Framework 42, 2006).

FW 42 set requirements for trawl codends in the SNE RMA to be made of either square or diamond mesh no smaller than 6.5 inches. The minimum mesh requirements implemented by FW 42 are intended to reduce discards of yellowtail flounder thereby increasing the rate of yellowtail flounder rebuilding. Since yellowtail flounder stock was not rebuilding quickly, even small improvements in rebuilding were considered important (Framework 42, 2006).

Small-mesh trawl gear is currently permitted within the several exempted fisheries. These fisheries allow vessels to fish for specific species, such as whiting or northern shrimp, in designated areas using mesh sizes smaller than the minimum mesh size allowed under the Regulated Mesh Area (RMA) regulations. No one may fish using a mesh smaller than those identified above unless they are eligible to participate in, and comply with all of the requirements of, a specific exempted fishery. To be approved and implemented, exemption programs must have demonstrated that incidental catch of regulated species is less than 5 percent of the total catch, by weight, and that the exemption will not jeopardize fishing mortality objectives.

Several specific areas within the GOM and GB RMAs have established fishery exemptions for whiting. Whiting may be fished for in the entire SNE and MA RMAs, under specific requirements. Vessels may fish for whiting with small mesh trawls *only within the designated exempted fishery areas* and provided they comply with the additional requirements and conditions specified in the regulations and summarized in this information sheet for each area/fishery. The small-mesh exempted fisheries include:

1. General Small Mesh Whiting Fishery Exemption Program
2. Gulf of Maine Grate Raised Footrope Trawl Whiting Fishery Exemption
3. Cultivator Shoal Whiting Fishery Exemption Area
4. Small Mesh Area 1 and 2 Exemption Areas
5. Raised Footrope Trawl Exempted Whiting Fishery Areas
6. Small Mesh Exemptions within the Southern New England Regulated Mesh Area
7. Small Mesh Exemptions within the Mid-Atlantic Regulated Mesh Area
8. Illex Squid Trawl Exemption Area
9. Northern Shrimp Fishery

Sectors have requested an exemption that would allow their vessels to possess and use small mesh and large mesh, on a single trip, while in possession of allocated multispecies, provided a NEFOP observer or an at-sea monitor is assigned to the trip. All allocated multispecies that are caught would be retained and would against the sector's ACE through landings or recorded discards. If approved, NMFS would require 100 percent observer coverage on these trips. As such, discards would be reported by observers for the entire trip, and no discard rate would be applied to these trips. However, discard from these observed trips would not be applied to a sector's assumed discard rate for this stratum because these trips are unique. The goal is to allow a vessel to engage in exempted fisheries while on a sector trip, to increase efficiency of fishing effort and gross revenue per trip, while decreasing vessel operating costs.

Because this exemption would require 100 percent observer or at-sea monitoring coverage and NMFS has limited funding to pay for observer and at-sea monitoring coverage, NMFS is proposing that industry fund 100% of the at-sea monitoring expenses when a vessel utilizes this exemption. Vessels interested in utilizing this exemption on a trip will not have the opportunity to request a federally-funded observer or at-sea monitor.

24. EFP-like Exemption for Sampling

Regulations prohibit possession of fish below minimum fish sizes (§648.83), species under quota closures (§648.80, §648.81, §648.85), and fish in excess of possession limits (§648.86). Such fish must be immediately returned to the ocean. An exemption permitting temporary possession authorizes a federally permitted fishing vessel that is accompanied by an eligible research technician to temporarily retain fish that are not compliant with applicable fishing regulations to collect data (e.g., lengths and weights of discards). All non-compliant fish are returned to the sea as soon as practicable following data collection. This sampling exemption is not extended to species protected under the Endangered Species Act or Marine Mammal Protection Act.

Some sectors have proposed independent sampling programs, where data would be collected from fish that otherwise must be immediately discarded. This exemption request would allow these sectors interested in collecting the data to do so.

25. 4.5-inch Mesh Size or Greater for Directed Redfish Trips

A minimum mesh size restriction in the Gulf of Maine (§ 648.80(a)(3) was implemented under Amendment 13 (69 FR 22906, 4/27/04) in conjunction with other management measures, to reduce overall mortality on groundfish stocks, change the selection pattern of the fishery to target larger fish, improve survival of sublegal fish, and allow sublegal fish more opportunity to spawn before entering the fishery (Framework 42, 2006).

This exemption would allow sector vessels to target redfish with codend mesh greater than or equal to 4.5 inches (11.4-cm) but less than 6.5 inches (16.5-cm) (the required minimum codend mesh size for the area fished) in a portion of the Gulf of Maine east of the Western Gulf of Maine year-round closed area. To aid in identifying trips targeting redfish with small-mesh nets, sector vessels intending to utilize this exemption are required to submit a trip start hail identifying the trip as one that will target redfish under the exemption. In addition, all sector trawl vessels that intend to target redfish with codend mesh less than 6.5 inches (16.5- cm) are required to have an observer or at-sea monitor on board. Mesh sizes are measured as described at 50 CFR 648.80(f).

Two catch thresholds, if exceeded by a sector, could result in the NMFS Northeast Regional Administrator rescinding the approval of this exemption for the sector in question. First, to help ensure that vessels do not direct on other species of fish, monthly catch amounts of regulated groundfish (both landings and discards) when trawling small mesh under this exemption must be comprised of at least 80 percent redfish. Second, to help mitigate catches of sub-legal sized groundfish, total groundfish discards (including redfish discards), may not exceed 5 percent of all regulated groundfish caught monthly when trawling with small-mesh nets. The Regional Administrator retains the authority to further adjust these two thresholds, if necessary, to help ensure that vessels are directing on redfish and catching minimal amounts of undersized groundfish. In addition, the Regional Administrator reserves the right to revoke this exemption on determining that the exemption is negatively impacting spawning fish, rebuilding efforts for any groundfish stock, or populations of stocks that the current minimum codend mesh size of 6.5 inches (16.5-cm) was intended to protect. Because of these catch thresholds, a catch monitoring program, and the requirement to submit a trip start hail, sector vessels are no longer required to submit daily catch reports when utilizing either this exemption.

All exempted small-mesh redfish trips will be observed and discard estimates on observed hauls will be used to calculate discards of unobserved hauls — a total amount of discards will then be derived for the entire trip. All groundfish catch from a declared small- mesh exempted redfish trip will be debited against the sector's allocation. No catch from small-mesh exempted redfish trips (even catch from mesh greater than 6.5 inches (16.5-cm)) will be factored into a sector's overall discard rate because targeted redfish trips may exhibit different behavior and/or catch rates.

This exemption allows vessels to fish with multiple mesh sizes while fishing on a trip targeting redfish with small mesh. However, if the majority of hauls are not observed, the Regional Administrator could

revoke the exemption. Vessels not fishing under an exempted redfish trip remain subject to the minimum mesh size requirements specified in the regulations

Because this exemption would require 100 percent observer or at-sea monitoring coverage and NMFS has limited funding to pay for observer and at-sea monitoring coverage, NMFS is proposing that industry fund 100% of the at-sea monitoring expenses when a vessel utilizes this exemption. Vessels interested in utilizing this exemption on a trip will not have the opportunity to request a federally-funded observer or at-sea monitor.

3.2.1 No Action Alternative 2

The No Action for Alternative 2 would not approve one or more of the sector -specific exemptions. The No Action would apply independently to each exemption. Under the No Action, sectors would not be exempt from the specific regulations, and would continue to follow the current regulations.

3.3 ALTERNATIVES CONSIDERED BUT REJECTED FROM FURTHER ANALYSIS

Amendment 16 established the rules for sector exemptions (§648.87 (b)(1)(xvi) & § 648.87(c)(2)). Sectors cannot request exemptions from:

1. year-round closed areas
2. permitting restrictions
3. gear restrictions designed to minimize habitat impacts
4. certain reporting requirements
5. regulations outside of the Northeast Multispecies FMP

Given this guidance, NMFS considered several exemptions but rejected them for further analysis. These included, but were not limited to, exemptions from internal NMFS policy, reporting requirements related to observer coverage, discard assumptions, and confidentiality. Unless sectors provided new information or data in their FY 2013 requests, NMFS also rejected most exemptions it disapproved for FY 2010 through FY 2012.

3.3.1 GOM Rolling Closure Areas

NMFS denied requests for additional exemptions from GOM Rolling Closure Areas in FYs 2010-2012 because of concerns that directly targeting spawning aggregations can adversely impact the reproductive potential of a stock, as opposed to post-spawning mortality. In addition, those requests were disapproved because the existing GOM Rolling Closure Areas provide some protection to harbor porpoise and other marine mammals. No new data or justifications were presented for FY 2013. Given the current status of the GOM cod stock, NMFS has considered but rejected the consideration of additional exemptions from the GOM Rolling Closure Areas in this action.

3.3.2 Fishing without ACE Operations Plan provisions

NMFS reviewed both VTR and NEFOP observer/ASM data from FY 2010 and 2011 for these requests. This data indicated that very few sector trips from FYs 2010 and 2011 met the standard of zero catch of limiting stock outlined in the guidance we issued to sectors. However, the data for several of the requests from FYs 2010 and 2011 indicates that the limiting stock comprised of less than 1 percent of catch and were considered for further analysis (Section 3.1). Request not meeting the less than 1 percent threshold were rejected from further consideration (Table 3.3.2-1).

Table 3.3.2-1 Fishing with no ACE requests rejected from further analysis						
Requesting Sector	**Target Stock**	**Limiting Stock**	**Season**	**Location (Statistical Area)**	**Gear Restrictions**	**Overlap with Existing Exempted Fishery?**
NEFS 5	Monkfish	GB West Cod	September thru April	539 and 616	Trawl	Yes
NEFS 5	Monkfish	GB Yellowtail	June	522	Trawl	No
NEFS 5	Summer Flounder	GB West Cod	October thru April	616	Trawl	No
NEFS 5	Little Skate (bait)	GB West Cod	February	537 and 613	Trawl	Yes
NEFS 5	Winter Skate Wing	GB West Cod	June	522	Trawl	No
NEFS 5	witch flounder	GB West Cod	February thru April	539	Trawl	No
NEFS 5	GB yellowtail flounder	GB West Cod	January thru April	525 and 613	Trawl	No
FGS	Monkfish	one or more ACE stocks	November through June	521	Extra Large Mesh Gillnet	No
FGS	Spiny Dogfish	one or more ACE stocks	Year-round	521	Extra Large Mesh Gillnet	Yes
FGS	Winter Skate	one or more ACE stocks	November through June	521	Extra Large Mesh Gillnet	No
FGS	Spiny Dogfish	one or more ACE stocks	Year-round	514	Large Mesh Gillnet	Yes
FGS	Spiny Dogfish	one or more ACE stocks	August through June	521	Large Mesh Gillnet	Yes*
FGS	Winter Skate	one or more ACE stocks	Year-round	521	Large Mesh Gillnet	No
FGS	Spiny Dogfish	one or more ACE stocks	Year-round	514	Longline	No
FGS	Spiny Dogfish	one or more ACE stocks	September through June	521	Longline	Yes*
FGS	Spiny Dogfish	one or more ACE stocks	Year-round	521	Handgear	Yes*

* Overlap with a proposed exempted fishery

4.0 AFFECTED ENVIRONMENT

What's in Section 4?

This section describes the environment of the area affected by the proposed action and alternatives. NMFS identified five Valued Ecosystem Components (VECs) which are the important environmental facets used to evaluate impacts in this EA. This section contains background data for multiple VECs for FY 2009 to FY 2011. It then has subsections describing each VEC. These VECs include:

- Physical environment/Essential Fish Habitat (EFH)
- Allocated target species
- Non-allocated target species and bycatch
- Protected resources
- Human communities

4.1 BACKGROUND SECTOR DATA FOR MULTIPLE VECS

4.1.1 Introduction to Sector Data

FY 2010 marked the first year that the sector program landed the overwhelming majority of the groundfish ACL. This document includes sector data from FY 2010 and FY 2011. Data from FY 2009 is also included for vessels that were sector members in FY 2010. This approach informs the analysis and provides a baseline for the public to better understand the operation of the sector fishery. Some differences in totals between the 2009-2010 analysis and the current analysis may be noted for 2009 and 2010. These are due to updates to the source data (VTR database and Data Matching and Imputation database (DMIS)) as well a minor modification to the sector membership algorithm. Sector membership is now based on MRI rather than vessel permit number. The reason for this is that the MRIs within a sector do not change during the fishing year, whereas a vessel permit may move into or out of a sector (although this is rare). Hence, MRI is a more reliable means of tracking sector membership.

For the purpose of this EA, and for the management of the sector fishery, the Northeast Regional Office defines a "groundfish trip," as a sector trip where groundfish is landed, and applied to a sector ACE. This definition differs from other methods of defining a groundfish trip. Other methodologies use a sector VMS declaration to define a groundfish trip regardless of whether groundfish was landed and applied to a sector ACE. Unless stated otherwise, NMFS complied most of the gear and/or location-specific data presented in this section, and elsewhere in the document from vessel trip reports (VTR). The Northeast Regional Office used VTR data because it contains effort data, and gear and positional information. NMFS took some of the data in the document, such as that concerning protected resources, from the Northeast fisheries observer data set. It is important that the reader be informed that there are different sources of fishery data (i.e., observer, self-reported, dealer, etc.), and the data used in this EA may be different than data published from other sources, such as reports from the Northeast Fishery Science Center, and from data published for other uses.

The EA analysis uses complete data sources. As such, we excluded trips with undefined gear, missing land dates, missing sector membership, and trips that did not submit a VTR. Such records may be included in other groundfish trip analysis and reports, but detailed trip data is required for the purpose of this EA. Total trip counts and catch counts in the EA may differ when comparing to the sector data available to the public on the NMFS website. Reasons for this difference include the following:

- The EA analyses use VTR and observer data (rationale explained above). The data on the sector website is from VMS, VTR, and dealer data. Therefore, a trip that was reported by a dealer, but which has no corresponding VTR, is displayed on the website, but not in the EA. Likewise, a trip that is reported only on the VMS declaration will be counted on the website, but is not included in the EA. This is the major source of trip count differences.

- The EA uses data from two years in order to determine the impacts of sector management. The primary purpose of quota monitoring is to determine the ACE as accurately as possible. Because of this difference in purpose, NMFS matches trips between multiple data sources are matched to account for misreporting. The EA has two data sources but uses them in separate analyses, thus it does not need to perform trip matching. Trip matching can have small effects on trip counts.

- Since the EA analyses seek to determine the effect of sector management, it focuses on the activity of vessels which were sector members. For the purpose of quota monitoring, sector membership is determined at the time of each landing.

- Catch weights will differ between the EA and other publically available sector data because the EA uses landed weight, as estimated by fishermen and reported on the VTR, whereas NMFS reports dealer live weight on their website.

4.1.2 Annual Catch Entitlement Comparison

As stated in Section 1.1.1, each sector receives a total amount (in pounds) of fish it can harvest for each stock. This amount is the sector's Annual Catch Entitlement (ACE). To determine the ACE, the sum of all of the sector members' potential sector contributions (PSCs) (a percentage of the ACL) are multiplied by the ACL to get the sector's ACE. Since the annual ACE is dependent on the amount of the ACL for a given fishing year, the ACE may be higher or lower from year to year even if the sector's membership remained the same. As seen in Table 4.1.2-1, there are substantial shifts in ACE for various stocks between FY 2009 and FY 2012. As seen in the below data, there has been a general decrease in trips, and catch for sector vessels. In addition, 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.

Table 4.1.2-1 Commercial Groundfish Sub ACL FY 2009 to FY 2012							
Groundfish Stock	**FY 2009 target/hard TAC (lbs)**	**FY 2010 ACL (lbs)**	**% Change 2009 to 2010**	**FY 2011 ACL (lbs)**	**% Change 2010 to 2011**	**FY 2012 ACL (lbs)**	**% Change 2011 to 2012**
Witch Flounder	2,489,019	1,878,338	-24.53%	2,724,914	45.07%	3,192,294	8.34%
White Hake	5,238,183	5,635,015	7.58%	6,556,548	16.35%	7,237,776	10.39%
SNE/MA Yellowtail Flounder	857,598	683,433	-20.31%	1,155,222	69.03%	1,675,513	45.04%
Redfish	18,990,619	15,092,846	-20.52%	16,625,059	10.15%	18,653,483	10.40
Pollock	13,990,535	36,493,118	160.84%	30,758,895	-15.71%	27,804,700	-9.60%
Plaice	7,085,657	6,278,765	-11.39%	6,851,967	9.13%	7,226,753	5.47%
GOM Winter Flounder	835,552	348,330	-58.31%	348,330	0.00%	1,576,305	352.53%
GOM Haddock	3,448,030	1,818,814	-47.25%	1,715,196	-5.70%	1,439,619	-16.07
GOM Cod	23,642,373	10,068,512	-57.41%	10,637,304	5.65%	4,310,037	-59.48%
GB Yellowtail Flounder	3,564,875	1,814,404	-49.10%	2,517,679	38.76%	479,946	80.94%
GB Winter Flounder	4,418,064	4,082,961	-7.58%	4,424,678	8.37%	7,467,057	68.76%
GB Haddock West	171,861,356	62,725,923	-63.50%	46,164,798	-26.40%	45,322,632	-1.82%
GB Haddock East	24,471,311	26,429,016	8.00%	21,252,562	-19.59%	15,167,804	-28.63%
GB Cod West	10,965,793	6,816,693	-37.84%	9,041,157	32.63%	9,795,138	8.34%
GB Cod East	1,161,836	745,162	-35.86%	440,925	-40.83%	357,149	-19.00%
CC/GOM Yellowtail Flounder	1,895,975	1,717,401	-9.42%	2,072,345	20.67%	2,306,035	11.28%
Totals	**294,916,777**	**182,628,733**	**-38.07%**	**163,287,579**	**-10.59%**	**153,712,242**	**-5.86%**

4.1.3 Introduction to Sector Fishing Data

In general, data show a slight decrease in trips and an increase in catch for FY 2011 sector vessels compared to FY 2009. This trend is apparent for both groundfish and non-groundfish trips. Vessels using different gear types show varying levels of consistency with the overall trend. The following tables present his data.

There are several methods used to measure fishing effort. These include:

- the number of trips to fishing grounds
- the length of the trips
- the amount of gear used on a trip
- the length of time that the gear was in the water fishing, and
- the size of the gear.

Catch per unit of effort is a widely used measure of how efficient a vessel is at catching fish. This analysis uses a "gearday" as a proxy for catch per unit effort. We define a gearday as a 24 hour approximation of the amount of gear in the water multiplied by several factors including gear size, hauls, and soak time. This can be expressed mathematically as:

$$\text{GEAR DAY} = \frac{\text{(GEAR QUANTITY) x (GEAR SIZE) x (\# OF HAULS) x (SOAK OR TOW TIME)}}{\text{24 HOURS}}$$

The definition of gear quantity, gear size, number of hauls and soak/tow time are consistent with the definitions found in the VTR reporting instructions. Table 4.1.3-1 presents these definitions.

Table 4.1.3-1
VTR Fishing Effort Definitions by Gear Type

Trawls	Gear Quantity:	number of trawls
	Gear Size:	sweep (foot rope) length in feet
	# of Hauls:	number of tows hauled per trip
	Tow/Soak Time:	time gear is completely hooked up to when gear is completely hauled back
Dredge	Gear Quantity:	number of dredges
	Gear Size:	dredge width in inches
	# of Hauls:	number of tows hauled per trip
	Tow/Soak Time:	time gear is completely hooked up to when gear is completely hauled back
Gillnet	Gear Quantity:	average number of nets per string
	Gear Size:	average length of the nets used in the string (not the entire string)
	# of Hauls:	number of strings hauled per tip
	Tow/Soak Time:	from when the first piece of gear is deployed until the last piece of gear is hauled back
Longline	Gear Quantity:	number of hooks
	Gear Size:	N/A*
	# of Hauls:	number of lines hauled per trip
	Tow/Soak Time:	from when the first piece of gear is deployed until the last piece of gear is hauled back
Pots	Gear Quantity:	average number of pots per string
	Gear Size:	total number of pots in the water
	# of Hauls:	number of strings hauled per trip
	Tow/Soak Time:	from when the first piece of gear is deployed until the last piece of gear is hauled back

* VTR Instruction Table #3 does not specify a reporting method for longline.

4.1.4 Data from All Trips Fished by Sector Vessels

The following tables compare trips, catch, and geardays for sector vessels during FY 2009 through FY 2011. The data in section 4.1.4 is not confined to groundfish trips, but includes information for catch, trips, and geardays from all trips taken by these vessels, whether on a groundfish or a non-groundfish trip (i.e., lobster fishing).

4.1.4.1 Overall Trends in Catch, Trips, and Geardays by Sector Vessels Fishing on Any Trip

Table 4.1.4.1-1
Overall Trips, Catch, and Geardays for Sector Vessels Fishing on All Trips

Fishing Year	Trips	Catch (lbs)	Geardays*	Non-Lobster Geardays	Lobster Geardays
2009	33,566	174,836,673	5,784,581,407	554,992,899	5,229,588,508
2010	27,419	157,635,461	6,948,934,961	836,327,810	6,112,607,151
2011	31,280	197,183,877	9,915,735,510	664,731,778	9,251,003,732

* Lobster pots primarily account for the increase in overall geardays

Table 4.1.4.1-1 illustrates total trips (including groundfish trips) taken by sector vessels. In addition, longline gearday data has contributed to an overall increase in non-lobster geardays in FY 2010 (see Table 4.1.4.2-5). Due to the higher numbers of quantity and soak time, increases in effort with fixed gear (e.g., gillnets, longlines, pots) are likely disproportionately higher than an increase (or decrease) in effort by trawl vessels. While the overall geardays increased 71.42% between FY 2009 and FY 2011, there are

differences in trends between gear types (see Tables 4.1.4.2.1 through 5). Therefore, when reviewing geardays, it is more informative to analyze trends within individual gear types (e.g., gillnet, trawl, longline, etc.) for a sense of how gear was used in a given fishing year than to examine overall changes. A comparison that combines geardays from different gear types is not as informative since the gears are all fished differently, and cumulative comparisons should not be made.

4.1.4.2 All Trips - Data Trends Across Gear Types

Gillnet Gears

Table 4.1.4.2-1
Overall Trips, Catch, and Geardays for Sector Vessels Fishing on All Trips with Gillnet Gear

Gillnet Gears	2009	2010	2011
Total Trips	10,932	6,458	7,962
Total Catch	30,810,087	20,446,215	23,819,894
Geardays	452,131,220	429,952,654	579,985,179

Trips and catch fell substantially for gillnet vessels, while geardays rose.

Trawl Gears

Table 4.1.4.2-2
Overall Trips, Catch, and Geardays for Sector Vessels Fishing on All Trips with Trawl Gear

Trawl	2009	2010	2011
Total Trips	16,437	13,749	14,311
Total Catch	138,233,040	131,491,268	165,947,523
Geardays	2,650,225	2,402,413	2,744,039

Table 4.1.4.2-2 shows how vessels that fished with trawl gear operated. For the period FY 2009 through FY 2011, trips fell and geardays rose slightly along with catch.

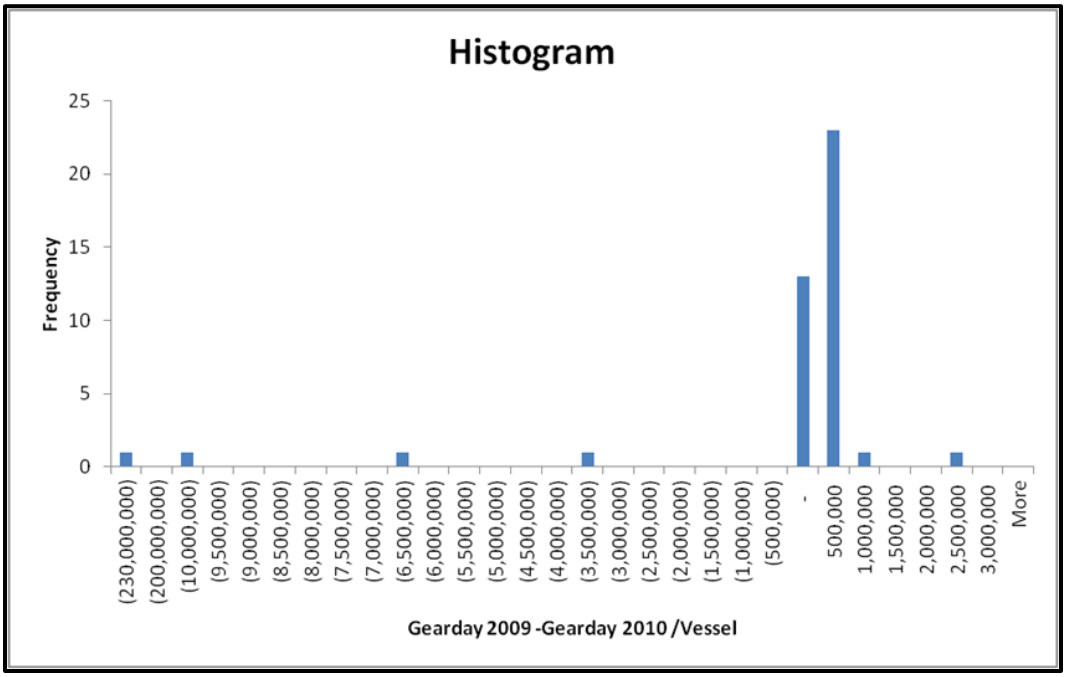
Longline Gears

Table 4.1.4.2-3
Overall Trips, Catch, and Geardays for Sector Vessels Fishing on All Trips with Longline Gear

Longline	2009	2010	2011
Total Trips	703	563	796
Total Catch	2,441,161	1,712,628	1,842,572
Geardays	79,662,095	380,276,713	44,301,318

Table 4.1.4.2-3 shows the operation of vessels fishing with longlines. This gear type includes both bottom and pelagic longlines. Catch and geardays fell substantially from FY 2009 to FY 2011. The substantial increase in geardays within the longline fleet in FY 2010 was caused by a small number of vessels (Figure 4.1.4.2-1) that reported geardays upward of 230 million, while the overwhelming majority of the longline vessels reported gearday decreases of between 0 and 500,000 from FY 2009 to FY 2010.

Figure 4.1.4.2-1 Histogram of longline geardays



Pots

Table 4.1.4.2-4 Overall Trips, Catch, and Geardays for Sector Vessels Fishing on All Trips with Pot Gear			
Pots	**2009**	**2010**	**2011**
Total Trips	4,405	5,496	7,296
Total Catch	2,828,660	3,401,828	5,089,948
Non-Lobster Geardays	20,457,698	23,688,864	37,699,826
Lobster Geardays	5,229,588,508	6,112,607,151	9,251,003,732
Total Geardays	5,250,046,206	6,136,296,015	9,288,703,558

Table 4.1.4.2-4 shows the operation of vessels fishing with pots. These gears include lobster, shrimp, crab, fish, and other pots. Trips, geardays, and catch have increased from FY 2009 to FY 2011. Much of this is due to a shift of effort by sector vessels into the lobster fishery.

Other Gears

Table 4.1.4.2-5 Overall Trips, Catch, and Geardays for Sector Vessels Fishing on All Trips with Other Gear Types			
Other Gear Types	**2009**	**2010**	**2011**
Total Trips	1,111	1,176	936
Total Catch	523,725	583,522	483,940
Geardays	91,660	7,166	1,415

The other gears category consists primarily of handgear. Trips and catch slightly decreased with a very substantial decrease in geardays during this period.

4.1.4.3 Data Trends by Location – Regulated Mesh Area (RMA)

Table 4.1.4.3-1
Overall Trips, Catch, and Geardays for Sector Vessels by RMA

	Fishing Year	Trips	Catch (lbs)	Geardays	Non-Lobster Geardays	Lobster Landings from Non-Lobster Geardays (lbs)	Lobster Geardays	Lobster Landings on Lobster Geardays (lbs)	Total Lobster (lbs)
Georges Bank	2009	4,545	5,5044,210	1,718,170,493	160,175,575	632,863	1,557,994,918	475,496	1,108,359
	2010	4,884	51,287,195	1,983,979,482	421,067,847	487,390	1,562,911,635	560,168	1,047,558
	2011	4,991	52,335,028	2,026,676,055	83,069,823	579,023	1,943,606,233	741,711	1,320,734
Gulf of Maine	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Landings from Non-Lobster Geardays (lbs)**	**Lobster Geardays**	**Lobster Landings on Lobster Geardays (lbs)**	**Total Lobster (lbs)**
	2009	21,607	58,854,423	3,673,661,401	241,350,672	237,390	3,432,310,729	1,166,389	1,403,779
	2010	15,262	44,198,306	4,576,730,081	261,731,400	170,738	4,314,998,681	1,656,520	1,827,258
	2011	18,083	56,284,166	7,587,795,835	344,764,228	237,544	7,243,031,607	2,592,294	2,829,838
Mid - Atlantic	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Landings from Non-Lobster Geardays (lbs)**	**Lobster Geardays**	**Lobster Landings on Lobster Geardays (lbs)**	**Total Lobster (lbs)**
	2009	574	9,436,355	6,207,856	6,041,748	2,319	166,109	100	2,419
	2010	632	7,024,953	10,363,929	7,074,349	24,042	3,289,581	1,983	26,025
	2011	523	18,312,624	12,448,556	7,478,473	149	4,970,083	4,167	4,316
Other Regulated Mesh Areas	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Landings from Non-Lobster Geardays (lbs)**	**Lobster Geardays**	**Lobster Landings on Lobster Geardays (lbs)**	**Total Lobster (lbs)**
	2009	126	769,321	3,725,931	3,348,523	10,119	377,407	0	10,119
	2010	80	773,534	6,580,559	2,58,756	8,653	6,321,804	0	8,653
	2011	85	854,289	518,818	518,818	10,943	0	0	10,943
Southern New England	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Landings from Non-Lobster Geardays (lbs)**	**Lobster Geardays**	**Lobster Landings on Lobster Geardays (lbs)**	**Total Lobster (lbs)**
	2009	6833	50,691,352	382,815,455	144076109	16,303	238,739,346	67,662	83,965
	2010	7125	54,307,048	371,274,597	146,189,147	15,047	225,085,450	56,181	71,228
	2011	8330	69,397,770	288,296,245	228,900,437	11,697	59,395,809	25,801	37,498

As is seen in the location data, trips and catch were down in the GOM RMA, while catch was up in MA RMA. However, all areas, expect for SNE saw increases in geardays. The large increase in geardays in most RMAs is likely due to a shift of effort into the lobster fishery or from lobster vessels with a small groundfish allocation enrolling in sectors, as can be seen in the increase in pot geardays as shown in Table 4.1.4.2-4. As noted in Tables 4.1.4.2-1, and 4.1.4.2-2, geardays for gillnet and trawl gears have risen overall on all trips. These are the two primary gears used in the groundfish fishery.

There are two likely reasons for the increase in lobster gear days. First, sector vessels that primarily target lobster may have increased their geardays. Lobster vessels with a NE multispecies permit must enroll in a sector to receive any allocation associated with that permit. Therefore, if these lobster vessels increased their effort, it would appear that sectors were increasing their lobster effort. However, this would not be the case because these vessels had targeted lobsters in previous fishing years. Thirty three sector vessels landed mostly lobsters in FY 2010 while 51 sector vessels landed mostly lobsters in FY 2011. Second, of the 51 lobster vessels in sectors in FY 2011, 16 were not in a sector the previous year but were lobster vessels in either FY 2010 or FY 2009. As a result, much of the gearday increase that is seen is due to lobster vessels enrolling in sectors, not due to sector vessels switching effort from groundfish into lobster. Importantly, only 5 vessels enrolled in sectors switched from groundfishing FY 2010 to lobstering in FY 2011. In conclusion, the increase in lobster geardays is not from an effort shift from groundfish vessels but from an increase by lobster vessels that are enrolled in sectors.

4.1.4.4 Seasonal Data Trends

Looking at the seasonal component, trips were down throughout the year in FY 2011 as compared with FY 2009, except for fall. Catch and geardays were up in every season.

4.1.4.5 Overall Data Trends by Sector

The sector-specific data for all fishing trips by sector vessels show tremendous variability for trips, catch, and geardays between sectors.

Table 4.1.4.5-1
Overall Trips, Catch, and Geardays for Sector Vessels by Sector

	Fishing Year	Trips	Catch (lbs)	Geardays	Non-Lobster Geardays	Lobster Geardays
Fixed Gear	2009	3,259	10,388,942	478,503,903	227,300,171	251,203,732
	2010	3,531	8,376,263	815,285,458	519,639,026	295,646,432
	2011	3,923	9,759,114	550,691,106	229,312,889	321,378,217
NCCS	Fishing Year	Trips	Catch (lbs)	Geardays	Non-Lobster Geardays	Lobster Geardays
	2009	1,007	760,377	531,016,371	4,847	531,011,524
	2010	1,029	694,131	559,344,419	597,844	558,746,575
	2011	1,585	1,117,750	1,194,615,142	7,202,098	1,187,413,043
NEFS 10	Fishing Year	Trips	Catch (lbs)	Geardays	Non-Lobster Geardays	Lobster Geardays
	2009	2,259	3,688,554	111,443,291	46,235,010	65,208,281
	2010	1,820	2,947,124	356,276,077	46,214,829	310,061,247
	2011	2,382	3,972,079	505,841,024	77,983,165	427,857,859

	Fishing Year	Trips	Catch (lbs)	Geardays	Non-Lobster Geardays	Lobster Geardays
NEFS 11	2009	3,734	10,344,986	943,651,901	97,912,734	845,739,167
	2010	2,775	6,454,037	1,051,274,750	95,827,456	955,447,294
	2011	2,818	6,112,066	1,245,556,736	63,142,377	1,182,414,359
NEFS 12	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	610	1,117,405	5,309,779	165,048	5,144,730
	2010	381	856,886	105,406	5,477	99,929
	2011	501	1,959,666	12,513,978	12,413,916	100,063
NEFS 13	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	1,156	18,898,915	307,774	307,774	-
	2010	1,255	21,307,399	302,827	302,759	68
	2011	1,518	28,713,217	329,126	329,126	-
NEFS 2	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	4,402	12,076,459	322,642,179	722,462	321,919,717
	2010	2,792	10,980,809	333,668,532	244,619	333,423,913
	2011	3,727	13,106,167	664,067,722	256,625	663,811,097
NEFS 3	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	6,260	8,496,459	1,647,857,765	117,563,830	1,530,293,935
	2010	3,714	5,948,271	2,002,866,500	129,507,537	1,873,358,964
	2011	4,915	6,547,162	2,498,877,535	204,938,105	2,293,939,430
NEFS 4	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	-	-	-	-	-
	2010	1	18	-	-	-
	2011	54	101,132	9,527,590	9,527,590	-
NEFS 5	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	3,139	30,061,487	141,953,465	5,124,037	136,829,428
	2010	3,194	29,434,892	58,940,188	3,326,121	55,614,067
	2011	2,900	29,829,087	162,989	162,989	-
NEFS 6	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	272	4,359,201	774,711,690	173,059	774,538,631

	2010	276	4,046,407	762,210,485	138,875	762,071,610
	2011	328	4,255,017	2,145,993,121	140,396	2,145,852,725
NEFS 7	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	963	13,793,466	84,541,903	14,819,593	69,722,310
	2010	827	7,341,063	103,029,502	13,078,671	89,950,831
	2011	559	5,416,489	21,888,155	21,410,972	477,183
NEFS 8	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	390	7,886,358	208,479	208,479	-
	2010	323	7,176,508	137,472	137,472	-
	2011	341	7,900,212	151,158	151,158	-
NEFS 9	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	696	8,784,960	494,461	494,461	-
	2010	594	9,375,466	474,160	474,160	-
	2011	689	13,536,503	612,198	612,198	-
Port Clyde	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	2,331	6,815,907	538,975,428	25,710,474	513,264,954
	2010	2,016	4,419,611	686,165,614	11,740,012	674,425,601
	2011	1,942	4,060,761	767,718,742	25,095,938	742,622,803
Sustainable Harvest 1	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	2,437	32,010,788	50,136,444	17,186,790	32,949,654
	2010	2,275	31,832,365	50,964,154	7,775,609	43,188,544
	2011	1,945	38,628,382	115,518,494	7,787,604	107,730,890
Sustainable Harvest 3	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	-	-	-	-	-
	2010	-	-	-	-	-
	2011	577	17,749,524	28,165	28,165	-
Tri-State	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**	**Non-Lobster Geardays**	**Lobster Geardays**
	2009	754	5,352,409	152,826,574	1,064,129	151,762,445
	2010	698	6,444,211	167,889,418	7,317,342	160,572,076
	2011	634	4,419,549	181,642,530	4,236,466	177,406,064

4.1.5 Effort Data for Sector Vessels on Groundfish Trips

Overall Gear Use

Table 4.1.5-1shows percentage of catch on groundfish trips as broken out by gear type. As is shown, trawl or gillnet gear caught approximately 97 percent of catch on these trips in FY 2010 and FY 2011.

Table 4.1.5-1
Catch by Gear Type While on a Groundfish Trip

Gear	Percentage of Groundfish Catch by Gear Type in 2010	Percentage of Groundfish Catch by Gear Type in 2011
Gillnet, or Trap	25%	25%
Longline	2%	2%
Pots	<1%	<1%
Trawl, Seine, or Dredge	73%	73%
Undefined	<1%	<1%

The next series of data shows shifts in effort over a two year period by looking at groundfish trips taken by sector participants along with DOF (i.e. trips where the vessel declared out of the groundfish fishery) trips taken by sector participants. This gives an idea of the magnitude of trips, and catch from vessels that are fishing inside and outside the groundfish fishery in FY 2009 through FY 2011. As in the previous data set, the FY 2009 data is from vessels that were members of a sector in FY 2010.

Table 4.1.5-2
Trips, Catch, and Geardays for Sector Vessels on Groundfish Trips by Gear

	Fishing Year	Trips	Catch (lbs)	Geardays
Gillnet	2009	10,740	30,255,595	438,692,622
	2010	5,967	18,858,156	412,897,320
	2011	7,443	22,465,607	522,341,695
Longline	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**
	2009	559	2,203,370	79,642,460
	2010	494	1,531,818	380,246,531
	2011	733	1,687,002	44,256,076
Pots	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**
	2009	28	22,096	16,172,969
	2010	5	1,499	670,596
	2011	-	-	-
Trawls, Seine or Dredge	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**
	2009	8,482	60,202,528	1,641,263
	2010	4,401	55,980,328	1,389,782
	2011	5,753	65,597,332	1,838,053
Undefined	**Fishing Year**	**Trips**	**Catch (lbs)**	**Geardays**
	2009	373	269,269	66,320
	2010	140	198,168	170
	2011	171	184,694	415

Data from groundfish trips, and trips using a groundfish or monkfish DAS), broken out by gear type, show a major reduction in trips (aside from longline), and catch (aside from trawl), while geardays have increased for gillnet and trawl vessels.

Table 4.1.5-3 Trips and Catch for Sector Vessels on Groundfish Trips by RMA			
Georges Bank	**Fishing Year**	**Trips**	**Catch (lbs)**
	2009	3,152	44,794,280
	2010	3,081	39,375,354
	2011	3,310	40,074,714
Gulf of Maine	**Fishing Year**	**Trips**	**Catch (lbs)**
	2009	15,750	40,547,783
	2010	7,110	27,447,640
	2011	9,651	37,076,466
Mid-Atlantic	**Fishing Year**	**Trips**	**Catch (lbs)**
	2009	124	444,367
	2010	117	340,636
	2011	130	298,861
Other Regulated Mesh Areas	**Fishing Year**	**Trips**	**Catch (lbs)**
	2009	51	567,651
	2010	50	447,616
	2011	59	725,921
Southern New England	**Fishing Year**	**Trips**	**Catch (lbs)**
	2009	1,177	6,558,865
	2010	1,181	8,958,723
	2011	1,643	11,758,673

In terms of RMA, data show that the number of groundfish trips has decreased substantially in the GOM RMA, while catch has increased most in SNE.

Table 4.1.5-4 Trips and Catch for Sector Vessels Fishing on DOF Trips by RMA			
Georges Bank	**Fishing Year**	**Trips**	**Catch (lbs)**
	2009	590	7,264,688
	2010	644	9,676,404
	2011	485	8,464,476
Gulf of Maine	**Fishing Year**	**Trips**	**Catch (lbs)**
	2009	3,233	6,834,933
	2010	4,709	8,270,229
	2011	3,562	4,447,999
Mid-Atlantic	**Fishing Year**	**Trips**	**Catch (lbs)**
	2009	230	7,530,839
	2010	234	5,243,376
	2011	235	15,095,203
Other Regulated Mesh Areas	**Fishing Year**	**Trips**	**Catch (lbs)**
	2009	22	160,479
	2010	12	207,837
	2011	2	4,435
Southern New England	**Fishing Year**	**Trips**	**Catch (lbs)**
	2009	3,313	31,640,537
	2010	3,564	33,631,839
	2011	3,755	36,458,766
Georges Bank	**Fishing Year**	**Trips**	**Catch (lbs)**
	2009	7,388	53,431,476
	2010	9,163	57,029,685
	2011	8,039	64,470,879

Sector vessels also may elect to fish in other fisheries, depending on the permits that they hold. Overall, data show an increase in trips and catch. This indicates that many vessels in sectors increased their catch out of the groundfish fishery in FY 2011 over FY 2009. Data provided by the sectors in their annual reports indicates that sector vessels shifted their effort into the lobster, dogfish, and skate fisheries.

Table 4.1.5-5 Overall Trips and Catch for Sector Vessels by Season					
		Groundfish Trips		DOF Trips	
Spring	Fishing Year	Trips	Catch (lbs)	Trips	Catch (lbs)
	2009	3,176	21,636,880	1,287	9,065,656
	2010	2,316	21,209,929	1,154	10,435,091
	2011	2,725	22,884,784	1,051	9,791,910
Summer	Fishing Year	Trips	Catch (lbs)	Trips	Catch (lbs)
	2009	6,936	29,493,044	1,667	15,124,792
	2010	3,834	24,145,218	2,494	15,128,123
	2011	4,740	26,899,944	2,466	27,330,013
Fall	Fishing Year	Trips	Catch (lbs)	Trips	Catch (lbs)
	2009	4,596	22,406,902	2,047	14,485,962
	2010	2,650	15,471,454	2,486	13,025,282
	2011	3,483	20,307,063	2,515	15,309,786
Winter	Fishing Year	Trips	Catch (lbs)	Trips	Catch (lbs)
	2009	5,458	19,416,032	2,363	14,756,166
	2010	2,200	15,743,368	3,008	18,485,260
	2011	3,149	19,842,844	1,973	12,039,170

The seasonal data show that for groundfish trips, the number of trips is down substantially. However, DOF trips have shown an increase in catch and trips during the summer.

Table 4.1.5-6 Overall Trips and Catch for Sector Vessels by Vessel Length					
Length (ft)		Groundfish Trips		DOF Trips	
<30	Fishing Year	Trips	Catch (lbs)	Trips	Catch (lbs)
	2009	108	98,331	78	73,383
	2010	2	4,260	76	66,720
	2011	15	5,440	1	116
30 to 49	Fishing Year	Trips	Catch (lbs)	Trips	Catch (lbs)
	2009	14,972	36,406,880	3,379	4,978,088
	2010	7,455	21,948,672	4,865	6,972,084
	2011	9,803	26,375,886	4,307	4,941,345
50 to 74	Fishing Year	Trips	Catch (lbs)	Trips	Catch (lbs)
	2009	3,905	28,055,155	2,934	23,023,463
	2010	2,386	23,134,612	3,339	25,107,544
	2011	3,114	28,054,072	2,953	24,794,465
>=75	Fishing Year	Trips	Catch (lbs)	Trips	Catch (lbs)
	2009	1,181	28,392,492	973	25,357,642
	2010	1,157	31,482,425	862	24,927,408
	2011	1,165	35,499,237	744	34,734,953

In looking at the length classes of groundfish vessels, the data show that catch and trips for groundfish trips taken by the smaller vessels fell more substantially than larger vessels. There are very few active fishing vessels less than 30 feet; most permitted vessels less than 30 feet are skiffs, and the fish associated with those permits is leased to other vessels. Correspondingly, data show that catch rose for the largest vessel size analyzed. However, DOF trips saw an increase in trips amongst the mid-sized vessels between 30 and 49 feet, and a decrease with the larger fleet.

4.1.6 Bycatch Data

Data in Table 4.1.6-1 show all catch by sector vessels on groundfish trips when vessels are not fishing on a Monkfish DAS. Data show an overall slight decrease in catch for groundfish trips taken without a monkfish DAS. Table 4.1.6-2 show non directed species catch by sector vessels while on groundfish trips without a monkfish DAS. Table 4.1.6-3 show monkfish/skate/dogfish catch by sector vessels while on groundfish trips without a monkfish DAS.

Table 4.1.6-1
Sector Vessels on Groundfish Trips without a Monkfish DAS by Gear Class

	Fishing Year	Catch (lbs)
Gillnet	2009	26,689,272
	2010	15,512,918
	2011	18,583,351
Longline	2009	2,203,370
	2010	1,531,818
	2011	1,687,002
Trap or Weir	2009	-
	2010	-
	2011	-
Pots	2009	21,717
	2010	1,405
	2011	-
Trawl, Seine, or Dredge	2009	56,209,724
	2010	51,331,275
	2011	60,206,139
Undefined	2009	264,069
	2010	198,168
	2011	184,694
Total Catch	2009	85,388,152
	2010	68,575,584
	2011	80,661,186

Table 4.1.6-2 Groundfish Trips without Monkfish DAS -			
Non-Directed Species Catch (lbs)			
GEAR CATEGORY	**2009**	**2010**	**2011**
Gillnet or Trap	12,965,469	8,249,608	10,162,876
Longline	919,114	472,929	658,222
Pots	8,592	155	-
Trawl, Seine, or Dredge	12,359,484	9,191,257	13,257,629
Undefined	46,465	133,916	101,400
Total	26,299,124	18,047,865	24,180,127

Table 4.1.6-3 Groundfish Trips without Monkfish DAS			
Monkfish+Skate+Dogfish Catch (live lbs)			
GEAR CATEGORY	**2009**	**2010**	**2011**
Gillnet or Trap	15,621,248	11,299,523	13,698,523
Longline	919,672	464,144	639,842
Pots	2,064	-	-
Trawl, Seine, or Dredge	15,359,797	10,608,353	15,880,103
Undefined	43,538	98,425	15,880,103
Total	31,946,319	22,470,445	30,315,954

The following data show catch when sector vessels are fishing on groundfish trips with a Monkfish DAS. Catch while using a monkfish DAS increased between 2009 and 2011.

Table 4.1.6-4 Groundfish Trips with Monkfish DAS			
All Catch (lbs)			
GEAR CATEGORY	**2009**	**2010**	**2011**
Gillnet or Trap	3,566,323	3,345,238	3,882,256
Longline	-	-	-
Pots	379	94	-
Trawl, Seine, or Dredge	3,992,804	4,649,053	5,391,193
Undefined	5,200	-	-
Total	7,564,706	7,994,385	9,273,449

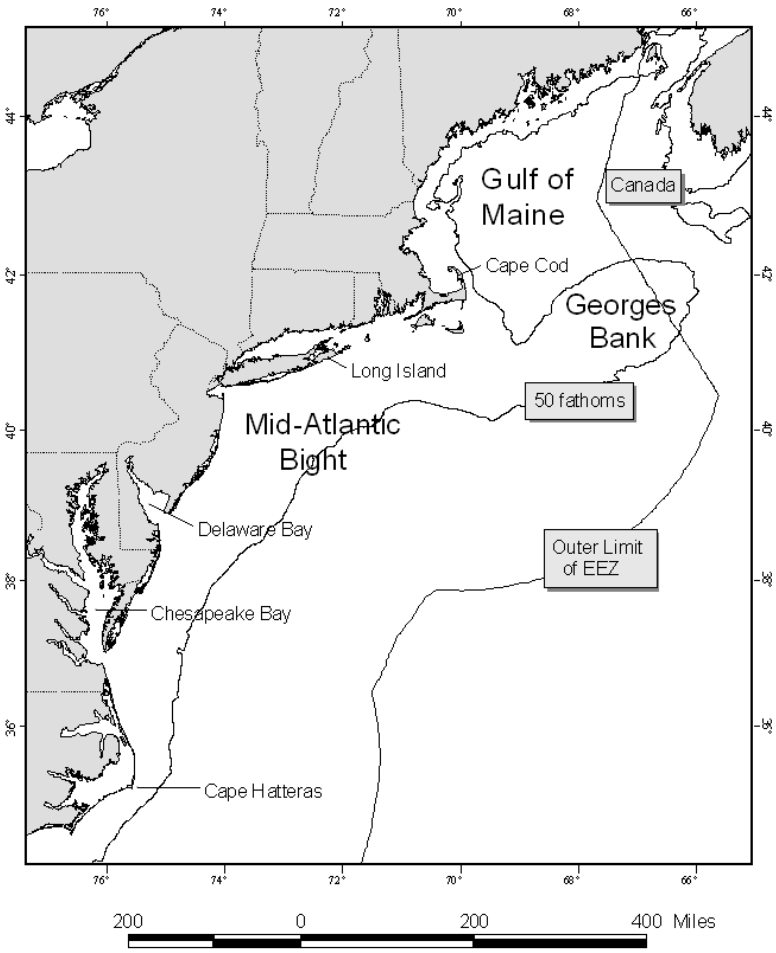
Table 4.1.6-5 Groundfish Trips with Monkfish DAS			
Non-Directed Species Catch (lbs)			
GEAR CATEGORY	**2009**	**2010**	**2011**
Gillnet or Trap	3,357,572	3,220,110	3,773,476
Longline	-	-	-
Pots	379	94	-
Trawl, Seine, or Dredge	1,642,991	1,868,339	2,201,765
Undefined	5,200	-	-
Total	5,006,142	5,088,543	5,975,241

Table 4.1.6-6 Groundfish Trips with Monkfish DAS			
Monkfish+Skate+Dogfish Catch (live lbs)			
GEAR CATEGORY	**2009**	**2010**	**2011**
Gillnet, or Trap	4,520,236	4,143,091	5,048,337
Longline	-	-	-
Pots	-	-	-
Trawl, Seine, or Dredge	2,596,421	2,502,646	3,250,102
Undefined	11,450	-	-
Total	7,128,107	6,645,736	8,298,439

4.2 PHYSICAL ENVIRONMENT/HABITAT/EFH

The Northeast U.S. Shelf Ecosystem (Figure 4.1-1) includes the area from the Gulf of Maine south to Cape Hatteras, North Carolina. It extends from the coast seaward to the edge of the continental shelf and offshore to the Gulf Stream (Sherman et al. 1996). The continental slope includes the area seaward of the shelf, out to a depth of 6,562 feet (ft) [2,000 meters (m)]. Four distinct sub-regions comprise the NMFS Northeast Region: the Gulf of Maine, Georges Bank, the southern New England/Mid-Atlantic region, and the continental slope. Sectors primarily fish 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 and biological environment focuses on these sub-regions. Information in this section was extracted from Stevenson et al. (2004).

Figure 4.1-1 Northeast U.S Shelf Ecosystem

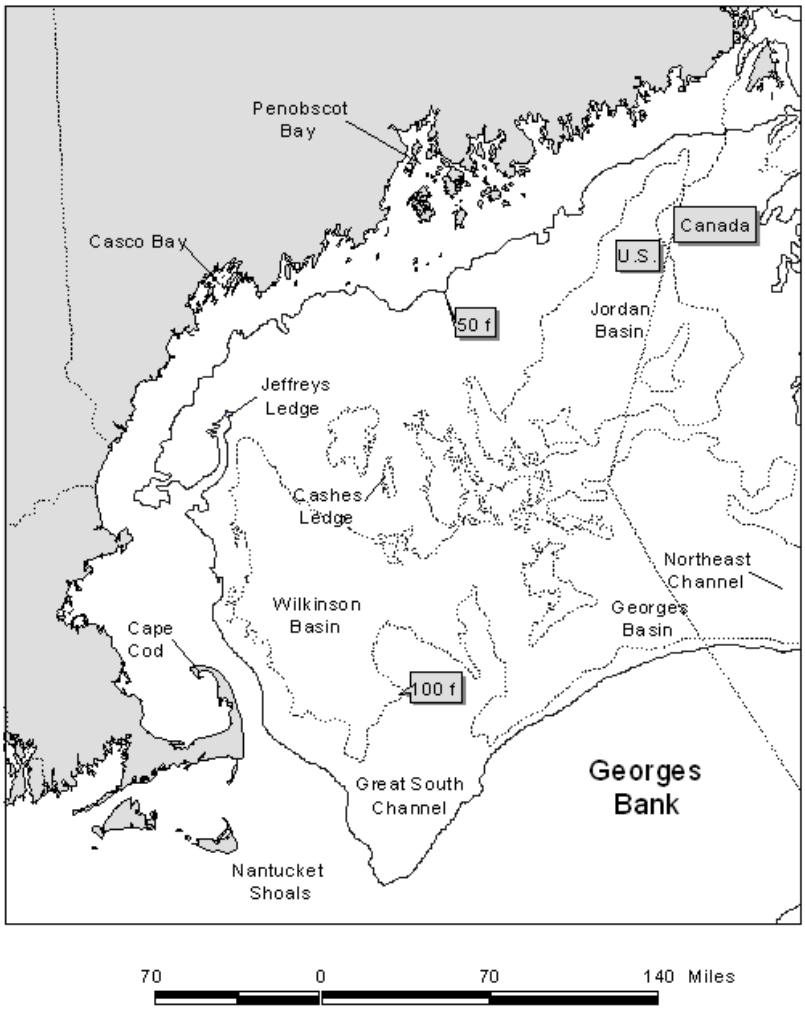


4.2.1 Affected Physical Environment

4.2.1.1 Gulf of Maine

The Gulf of Maine is bounded on the east by Browns Bank, on the north by the Nova Scotian (Scotian) Shelf, on the west by the New England states, and on the south by Cape Cod and Georges Bank (Figure 4.2.1.1-1). The Gulf of Maine is a boreal environment characterized by relatively cold waters and deep basins, with a patchwork of various sediment types. There are 21 distinct basins separated by ridges, banks, and swells. Depths in the basins exceed 820 ft (250 m), with a maximum depth of 1,148 ft (350 m) in Georges Basin, just north of Georges Bank. High points within the Gulf of Maine include irregular ridges, such as Cashes Ledge, which peaks at 30 ft (9 m) below the surface.

Figure 4.2.1.1-1Gulf of Maine



The Gulf of Maine is an enclosed coastal sea that was glacially derived and is characterized by a system of deep basins, moraines, and rocky protrusions (Stevenson et al. 2004). The Gulf of Maine is topographically diverse from the rest of the continental border of the U.S. Atlantic coast (Stevenson et al. 2004). Very fine sediment particles created and eroded by the glaciers have collected in thick deposits over much of the seafloor of the Gulf of Maine, particularly in its deep basins. These mud deposits blanket and obscure the irregularities of the underlying bedrock, forming topographically smooth terrains. In the rises between the basins, other materials are usually at the surface. Unsorted glacial till covers some morainal areas, sand predominates on some high areas, and gravel,[3] sometimes with boulders, predominates others. Bedrock is the predominant substrate along the western edge of the Gulf of Maine, north of Cape Cod in a narrow band out to a water depth of about 197 ft (60 m). Mud predominates in coastal valleys and basins that often abruptly border rocky substrates. Gravel, often mixed with shell, is common adjacent to bedrock outcrops and in fractures in the rock. Gravel is most abundant at depths of 66 to 131 ft (20 to 40 m), except off eastern Maine where a gravel-covered plain exists to depths of at least 328 ft (100 m). Sandy areas are relatively rare along the inner shelf of the western Gulf of Maine, but are more common south of Casco Bay, especially offshore of sandy beaches.

[3] The term "gravel," as used in this analysis, is a collective term that includes granules, pebbles, cobbles, and boulders in order of increasing size. Therefore, the term "gravel" refers to particles larger than sand and generally denotes a variety of "hard bottom" substrates.

The geologic features of the Gulf of Maine coupled with the vertical variation in water properties (e.g., salinity, depth, temperature) combine to provide a great diversity of habitat types that support a rich biological community. To illustrate this, a brief description of benthic invertebrates and demersal (i.e., bottom-dwelling) fish that occupy the Gulf of Maine is provided below. Additional information is provided in Stevenson et al. (2004), which is incorporated by reference.

The most common groups of benthic invertebrates in the Gulf of Maine reported by Theroux and Wigley (1998) in terms of numbers collected were annelid worms, bivalve mollusks, and amphipod crustaceans. Bivalves, sea cucumbers, sand dollars, annelids, and sea anemones dominated biomass. Watling (1998) identified seven different bottom assemblages that occur on the following habitat types:

1) Sandy offshore banks: fauna are characteristically sand dwellers with an abundant interstitial component;
2) Rocky offshore ledges: fauna are predominantly sponges, tunicates, bryozoans, hydroids, and other hard bottom dwellers;
3) Shallow [< 197 ft (60 m)] temperate bottoms with mixed substrate: fauna population is rich and diverse, primarily comprised of polychaetes and crustaceans;
4) Primarily fine muds at depths of 197 to 459 ft (60 to 140 m) within cold Gulf of Maine Intermediate Water:[4] fauna are dominated by polychaetes, shrimp, and cerianthid anemones;
5) Cold deep water, muddy bottom: fauna include species with wide temperature tolerances which are sparsely distributed, diversity low, dominated by a few polychaetes, with brittle stars, sea pens, shrimp, and cerianthids also present;
6) Deep basin, muddy bottom, overlaying water usually 45 to 46 °F (7 to 8°C): fauna densities are not high, dominated by brittle stars and sea pens, and sporadically by tube-making amphipods; and
7) Upper slope, mixed sediment of either fine muds or mixture of mud and gravel, water temperatures always greater than 46 °F (8°C): upper slope fauna extending into the Northeast Channel.

Two studies (Gabriel 1992, Overholtz and Tyler 1985) reported common[5] demersal fish species by assemblages in the Gulf of Maine and Georges Bank:

- Deepwater/Slope and Canyon: offshore hake, blackbelly rosefish, Gulf stream flounder;
- Intermediate/Combination of Deepwater Gulf of Maine-Georges Bank and Gulf of Maine-Georges Bank Transition: silver hake, red hake, goosefish (monkfish);
- Shallow/Gulf of Maine-Georges Bank Transition Zone: Atlantic cod, haddock, pollock;
- Shallow water Georges Bank-southern New England: yellowtail flounder, windowpane flounder, winter flounder, winter skate, little skate, longhorn sculpin;
- Deepwater Gulf of Maine-Georges Bank: white hake, American plaice, witch flounder, thorny skate; and
- Northeast Peak/Gulf of Maine-Georges Bank Transition: Atlantic cod, haddock, pollock.

[4] Maine Intermediate Water is described as a mid-depth layer of water that preserves winter salinity and temperatures, and is located between more saline Maine bottom water and the warmer, stratified Maine surface water. The stratified surface layer is most pronounced in the deep portions of the western Gulf of Maine.

[5] Other species were listed as found in these assemblages, but only the species common to both studies are listed.

4.2.1.2 Georges Bank

Georges Bank is a shallow (10 to 492 ft [3 to 150 m depth]), elongated ((100 miles [mi] (161 kilometer [km] wide) by 20 mi (322 km long)) extension of the continental shelf that was formed during the Wisconsinian glacial episode (Figure 4.1-1). It has a steep slope on its northern edge, a broad, flat, gently sloping southern flank, and steep submarine canyons on its eastern and southeastern edges. It has highly productive, well-mixed waters and strong currents. The Great South Channel lies to the west. Natural processes continue to erode and rework the sediments on Georges Bank. Erosion and reworking of sediments by the action of rising sea level as well as tidal and storm currents may reduce the amount of sand and cause an overall coarsening of the bottom sediments (Valentine and Lough 1991).

Bottom topography on eastern Georges Bank consists of linear ridges in the western shoal areas; a relatively smooth, gently dipping seafloor on the deeper, easternmost part; a highly energetic peak in the north with sand ridges up to 30 m high and extensive gravel pavement; and steeper and smoother topography incised by submarine canyons on the southeastern margin. The central region of Georges Bank is shallow, and the bottom has shoals and troughs, with sand dunes superimposed within. The area west of the Great South Channel, known as Nantucket Shoals, is similar in nature to the central region of Georges Bank. Currents in these areas are strongest where water depth is shallower than 164 ft (50 m). Sediments in this region include gravel pavement and mounds, some scattered boulders, sand with storm-generated ripples, and scattered shell and mussel beds. Tidal and storm currents range from moderate to strong, depending upon location and storm activity.

Oceanographic frontal systems separate the water masses of the Gulf of Maine and Georges Bank from oceanic waters south of Georges Bank. These water masses differ in temperature, salinity, nutrient concentration, and planktonic communities. These differences influence productivity and may influence fish abundance and distribution.

Georges Bank has historically had high levels of both primary productivity and fish production. The most common groups of benthic invertebrates on Georges Bank in terms of numbers collected were amphipod crustaceans and annelid worms, while sand dollars and bivalves dominated the overall biomass (Theroux and Wigley 1998). Using the same database, Theroux and Grosslein (1987) identified four macrobenthic invertebrate assemblages that occur on similar habitat type:

1) The Western Basin assemblage is found in comparatively deep water (492 to 656 ft [150 to 200 m]) with relatively slow currents and fine bottom sediments of silt, clay, and muddy sand. Fauna are comprised mainly of small burrowing detritivores and deposit feeders, and carnivorous scavengers.
2) The Northeast Peak assemblage is found in variable depths and current strength and includes coarse sediments, consisting mainly of gravel and coarse sand with interspersed boulders, cobbles, and pebbles. Fauna tend to be sessile (coelenterates, brachiopods, barnacles, and tubiferous annelids) or free-living (brittle stars, crustaceans, and polychaetes), with a characteristic absence of burrowing forms.
3) The Central Georges Bank assemblage occupies the greatest area, including the central and northern portions of Georges Bank in depths less than 328 ft (100 m). Medium-grained shifting sands predominate this dynamic area of strong currents. Organisms tend to be small to moderately large with burrowing or motile habits. Sand dollars are most characteristic of this assemblage.
4) The Southern Georges Bank assemblage is found on the southern and southwestern flanks at depths from 262 to 656 ft (80 to 200 m), where fine-grained sands and moderate currents predominate. Many southern species exist here at the northern limits of their range. Dominant fauna include amphipods, copepods, euphausiids, and starfish.

Common demersal fish species in Georges Bank are offshore hake, blackbelly rosefish, Gulf stream flounder, silver hake, red hake, goosefish (monkfish), Atlantic cod, haddock, pollock, yellowtail flounder, windowpane flounder, winter flounder, winter skate, little skate, longhorn sculpin, white hake, American plaice, witch flounder, and thorny skate.

4.2.1.3 Southern New England/Mid-Atlantic Bight

The Mid-Atlantic Bight includes the shelf and slope waters from Georges Bank south to Cape Hatteras, and east to the Gulf Stream (Figure 4.1-1). The northern portion of the Mid-Atlantic Bight is sometimes referred to as southern New England. It generally includes the area of the continental shelf south of Cape Cod from the Great South Channel to Hudson Canyon. The Mid-Atlantic Bight consists of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, North Carolina. The shelf slopes gently from shore out to between 62 to 124 ft (100 and 200 km) offshore where it transforms to the slope (328 to 656 ft [100 to 200 m water depth]) at the shelf break. In both the Mid-Atlantic Bight and on Georges Bank, numerous canyons incise the slope, and some cut up onto the shelf itself (Stevenson et al. 2004). Like the rest of the continental shelf, sea level fluctuations during past ice ages largely shaped the topography of the Mid-Atlantic Bight. Since that time, currents and waves have modified this basic structure.

The sediment type covering most of the shelf in the Mid-Atlantic Bight is sand, with some relatively small, localized areas of sand-shell and sand-gravel. Silty sand, silt, and clay predominate on the slope. Permanent sand ridges occur in groups with heights of about 33 ft (10 m), lengths of 6 to 31 mi (10 to 50 km), and spacing of 1 mi (2 km). The sand ridges are usually oriented at a slight angle towards shore, running in length from northeast to southwest. Sand ridges are often covered with smaller similar forms such as sand waves, megaripples, and ripples. Sand waves are usually found in patches of 5 to 10 with heights of about 7 ft (2 m), lengths of 164 to 328 ft (50 to 100 m), and 0.6 to 1 mi (1 to 2 km) between patches. Sand waves are temporary features that form and re-form in different locations. They usually occur on the inner shelf, especially in areas like Nantucket Shoals where there are strong bottom currents. Because tidal currents southwest of Nantucket Shoals and southeast of Long Island and Rhode Island slow significantly, there is a large mud patch on the seafloor where silts and clays settle out.

Artificial reefs are another important Mid-Atlantic Bight habitat. Artificial reefs formed much more recently on the geologic time scale than other regional habitat types. These localized areas of hard structure have been formed by shipwrecks, lost cargoes, disposed solid materials, shoreline jetties and groins, submerged pipelines, cables, and other materials (Steimle and Zetlin 2000). In general, reefs are important for attachment sites, shelter, and food for many species. In addition, fish predators, such as tunas, may be drawn by prey aggregations or may be behaviorally attracted to the reef structure. Estuarine reefs, such as blue mussel beds or oyster reefs, are dominated by epibenthic organisms, as well as crabs, lobsters, and sea stars. These reefs are hosts to a multitude of fish, including gobies, spot, bass (black sea and striped), perch, toadfish, and croaker. Coastal reefs consist of either exposed rock, wrecks, kelp, or other hard material. Boring mollusks, algae, sponges, anemones, hydroids, and coral generally dominate these coastal reefs. These reef types also host lobsters, crabs, sea stars, and urchins, as well as a multitude of fish, including; black sea bass, pinfish, scup, cunner, red hake, gray triggerfish, black grouper, smooth dogfish, and summer flounder. These epibenthic organisms and fish assemblages are similar to the reefs farther offshore, which generally consist of rocks and boulders, wrecks, and other types of artificial reefs. There is less information available for reefs on the outer shelf, but the fish species associated with these reefs include tilefish, white hake, and conger eel.

In terms of numbers, amphipod crustaceans and bivalve mollusks dominate the benthic inhabitants of this primarily sandy environment. Mollusks (70%) dominate the biomass (Theroux and Wigley 1998). Pratt (1973) identified three broad faunal zones related to water depth and sediment type:

1) The “sand fauna” zone is dominated by polycheates and was defined for sandy sediments (1 percent or less silt) that are at least occasionally disturbed by waves, from shore out to a depth of about 164 ft (50 m).

2) The “silty sand fauna” zone is dominated by amphipods and polychaetes and occurs immediately offshore from the sand fauna zone, in stable sands containing a small amount of silt and organic material.

3) Silts and clays become predominant at the shelf break and line the Hudson Shelf Valley supporting the “silt-clay fauna.”

While substrate is the primary factor influencing demersal species distribution in the Gulf of Maine and Georges Bank, latitude and water depth are the primary influence in the Mid-Atlantic Bight area. Colvocoresses and Musick (1984) identified the following assemblages in the Mid-Atlantic subregion during spring and fall.[6]

- Northern (boreal) portions: hake (white, silver, red), goosefish (monkfish), longhorn sculpin, winter flounder, little skate, and spiny dogfish;
- Warm temperate portions: black sea bass, summer flounder, butterfish, scup, spotted hake, and northern searobin;
- Water of the inner shelf: windowpane flounder;
- Water of the outer shelf: fourspot flounder; and
- Water of the continental slope: shortnose greeneye, offshore hake, blackbelly rosefish, and white hake.

4.2.2 Habitat

Habitats provide living things with the basic life requirements of nourishment and shelter. This ultimately provides for both individual and population growth. The quantity and quality of available habitat influences the fishery resources of a region. Depth, temperature, substrate, circulation, salinity, light, dissolved oxygen, and nutrient supply are important parameters of a given habitat. These parameters determine the type and level of resource population that the habitat supports. Table 4.2.2-1 briefly summarizes the habitat requirements for each of the large-mesh groundfish species/stocks managed by the Northeast Multispecies FMP. Information for this table was extracted from the original Northeast Multispecies FMP and profiles available from NMFS (Clark 1998). EFH information for egg, juvenile, and adult life stages for these species was compiled from Stevenson et al. 2004 (Table 4.2.2-1). Note that EFH for the egg stage was included for species that have a demersal egg stage (winter flounder and ocean pout); all other species’ eggs are found either in the surface waters, throughout the water column, or are retained inside the parent until larvae hatch. The egg habitats of these species are therefore not generally subject to interaction with gear and are not listed in Table 4.2.2-1.

[6] Other species were listed as found in these assemblages, but only the species common to both spring and fall seasons are listed.

Table 4.2.2-1
Summary of Geographic Distribution, Food Sources, Essential Fish Habitat Features, and Commercial Gear Used to Catch Each Species in the Northeast Multispecies Fishery Management Unit

Species	Geographic Region of the Northwest Atlantic	Food Source	Essential Fish Habitat		Commercial Fishing Gear Used
			Water Depth	Substrate	
Atlantic cod	Gulf of Maine, Georges Bank and southward	Omnivorous (invertebrates and fish)	(J): 82-245 ft (25-75 m)	(J): Cobble or gravel bottom substrates	Otter trawl, bottom longlines, gillnets
			(A): 33-492 ft (10-150 m)	(A): Rocks, pebbles, or gravel bottom substrate	
Haddock	southwestern Gulf of Maine and shallow waters of Georges Bank	Benthic feeders (amphipods, polychaetes, echinoderms), bivalves, and some fish	(J): 115-328 ft (35-100 m)	(J): Pebble and gravel bottom substrates	Otter trawl, bottom longlines, gillnets
			(A): 131-492 ft (40-150 m)	(A): Broken ground, pebbles, smooth hard sand, smooth areas between rocky patches	
Acadian redfish	Gulf of Maine, deep portions of Georges Bank and Great South Channel	Crustaceans	(J): 82-1,312 ft (25-400 m)	(J): Bottom habitats with a substrate of silt, mud, or hard bottom	Otter trawl
			(A): 164-1,148 ft (50-350 m)	(A): Same as for (J)	
Pollock	Gulf of Maine, extends to Georges Bank, and the northern part of Mid-Atlantic Bight	Juvenile feed on crustaceans, adults also feed on fish and mollusks	(J): 0-820 ft (0-250 m)	(J): Bottom habitats with aquatic vegetation or substrate of sand, mud, or rocks	Otter trawl, gillnets
			(A): 49-1,198 ft (5-365 m)	(A): Hard bottom habitats including artificial reefs	
Atlantic Halibut	Gulf of Maine, Georges Bank	Juveniles feed on annelid worms and crustaceans, adults mostly feed on fish	(J): 66-197 ft (20-60 m)	(J): Bottom habitat with a substrate of sand, gravel, or clay	Otter trawl, bottom longlines
			(A): 328-2,297 ft (100-700 m)	(A): Same as for (J)	
			(J): 262 ft (<80 m)	(J): Bottom habitat, often smooth areas near rocks or algae	

Table 4.1.2-1 (continued)
Summary of Geographic Distribution, Food Sources, Essential Fish Habitat Features, and Commercial Gear Used to Catch Each Species in the Northeast Multispecies Fishery Management Unit

Species	Geographic Region of the Northwest Atlantic	Food Source	Essential Fish Habitat		Commercial Fishing Gear Used
			Water Depth	Substrate	
Ocean Pout	Gulf of Maine, Cape Cod Bay, Georges Bank, southern New England, middle Atlantic south to Delaware Bay	Juveniles feed on amphipods and polychaetes. Adults feed mostly on echinoderms as well as on mollusks and crustaceans	(E): <164 ft (<50 m)	(E): Bottom habitats, generally hard bottom sheltered nests, holes, or crevices where juveniles are guarded.	Otter trawl
			(L): <164 ft (<50 m)	(L): Hard bottom nesting areas	
			(J): 262 ft (<80 m)	(J): Bottom habitat, often smooth areas near rocks or algae	
			(A): 361 ft (<110 m)	(A): Bottom habitats; dig depressions in soft sediments	
White hake	Gulf of Maine, Georges Bank, southern New England	Juveniles feed mostly on polychaetes and crustaceans; adults feed mostly on crustaceans, squids, and fish	(J): 16-738 ft (5-225 m)	(J): Bottom habitat with seagrass beds or substrate of mud or fine-grained sand	Otter trawl, gillnets
			(A): 16-1,066 ft (5-325 m)	(A): Bottom habitats with substrate of mud or fine grained sand	
Yellowtail flounder	Gulf of Maine, southern New England, Georges Bank	Amphipods and polychaetes	(J): 66-164 ft (20-50 m)	(J): Bottom habitats with substrate of sand or sand and mud	Otter trawl
			(A): 66-164 ft (20-50 m)	(A): Same as for (J)	
American plaice	Gulf of Maine, Georges Bank	Polychaetes, crustaceans, mollusks, echinoderms	(J): 148-492 ft (45-150 m)	(J): Bottom habitats with fine grained sediments or a substrate of sand or gravel	Otter trawl
			(A): 148-574 ft (45–175 m)	(A): Same as for (J)	

Table 4.1.2-1 (continued)
Summary of Geographic Distribution, Food Sources, Essential Fish Habitat Features, and Commercial Gear Used to Catch Each Species in the Northeast Multispecies Fishery Management Unit

Species	Geographic Region of the Northwest Atlantic	Food Source	Essential Fish Habitat		Commercial Fishing Gear Used
			Water Depth	Substrate	
Witch flounder	Gulf of Maine, Georges Bank, Mid-Atlantic Bight/southern New England	Mostly polychaetes (worms), echinoderms	(J): 164-1,476 ft (50-450 m)	(J): Bottom habitats with fine grained substrate	Otter trawl
			(A): 82-984 ft) (25-300 m)	(A): Same as for (J)	
Winter flounder	Gulf of Maine, Georges Bank, Mid-Atlantic Bight/southern New England	Polychaetes, crustaceans	(E): 16 ft (<5 m)	(E): Bottom habitats with a substrate of sand, muddy sand, mud, and gravel	Otter trawl, gillnets
			(J): 0.3-32 ft (0.1-10 m) (3-164 ft age 1+) (1-50 m)	(J): Bottom habitats with a substrate of mud or fine grained sand	
			(A): 3.2-328 ft (1-100 m)	(A): Bottom habitats including estuaries with substrates of mud, sand, gravel	
Atlantic wolffish	Gulf of Maine & Georges Bank	Mollusks, brittle stars, crabs, and sea urchins	(J): 131.2-787.4 ft (40-240 m)	(J): Rocky bottom and coarse sediments	Otter trawl, bottom longlines, and gillnets
			(A): 131.2-787.4 ft (40-240 m)	(A): Same as for (J)	
Windowpane flounder	Gulf of Maine, Georges Bank, Mid-Atlantic Bight/southern New England	Juveniles mostly crustaceans; adults feed on crustaceans and fish	(J): 3.2-328 ft (1-100 m)	(J): Bottom habitats with substrate of mud or fine grained sand	Otter trawl
			(A): 3.2-574 ft (1-75 m)	(A): Same as for (J)	

4.2.3 Essential Fish Habitat (EFH)

The Sustainable Fisheries Act defines EFH as "[t]hose waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The proposed action could potentially affect EFH for benthic life stages of species that are managed under the Northeast Multispecies FMP; Atlantic sea scallop; monkfish; deep-sea red crab; northeast skate complex; Atlantic herring; summer flounder, scup, and black sea bass; tilefish; squid, Atlantic mackerel, and butterfish; Atlantic surfclam and ocean quahog FMPs. EFH for the species managed under these FMPs includes a wide variety of benthic habitats in state and Federal waters throughout the Northeast U.S. Shelf Ecosystem. Table 4.1.2-1 summarizes the EFH descriptions of the general substrate or bottom types for all the benthic life stages of the species managed under these FMPs. Full descriptions and maps of EFH for each species and life stage are available on the NMFS Northeast Region website at http://www.nero.noaa.gov/hcd/index2a.htm. In general, EFH for species and life stages that rely on the seafloor for shelter (e.g., from predators), reproduction, or food is vulnerable to disturbance by bottom tending gear. The most vulnerable habitat is more likely to be hard or rough bottom with attached epifauna.

4.2.4 Gear Types and Interaction with Habitat

Sectors would fish for target species with a number of gear types: trawl, gillnet, fish pots/traps, and hook and line gear (including jigs, handline, and non-automated demersal longlines) as part of the FY 2012 operations. This section discusses the characteristics of each of the proposed gear types as well as the typical impacts to the physical habitat associated with each of these gear types.

4.2.4.1 Gear Types

Table 4.1.4-1 summarizes the typical gear types used by the multispecies fishery.

Table 4.2.4-1
Descriptions of the Fixed Gear Types Used by the Multispecies Fishery

	Gear Type			
	Trawl	**Sink/ Anchor Gillnets**	**Bottom Longlines**	**Hook and Line**
Total Length	Varies	295 ft (90 m) long per net	~1,476 ft (451 m)	Varies by target species
Lines	N/A	Leadline and floatline with webbing (mesh) connecting	Mainline is parachute cord. Gangions (lines from mainline to hooks) are 15 inches (38 cm) long, 3 to 6 inches (8 to 15 cm) apart, and made of shrimp twine	One to several with mechanical line fishing
Nets	Rope or large-mesh size, depends upon target Species	Monofilament, mesh size depends on the target species (groundfish nets minimum mesh size of 6.5 inches [16.5 cm])	No nets, but 12/0 circle hooks are required	No nets, but single to multiple hooks, "umbrella rigs"
Anchoring	N/A	22 lbs (10 kg) Danforth-style anchors are required at each end of the net string	20-24 lbs (9-11 kg) anchors, anchored at each end, using pieces of railroad track, sash weights, or Danforth anchors, depending on currents	No anchoring, but sinkers used (stones, lead)
Frequency/ Duration of Use	Tows last for several hours	Frequency of trending changes from daily (when targeting groundfish) to semi-weekly (when targeting monkfish and skate)	Usually set for a few hours at a time	Depends upon cast/target species

Trawl Gear

Trawls are classified by their function, bag construction, or method of maintaining the mouth opening. Function may be defined by the part of the water column where the trawl operates (e.g., bottom) or by the species that it targets (Hayes 1983). Mid-water trawls are designed to catch pelagic species in the water column and do not normally contact the bottom; however, mid-water trawls are prohibited in the Northeast Multispecies fishery. Bottom trawls are designed to be towed along the seafloor and to catch a variety of demersal fish and invertebrate species.

Fishermen use the mid-water trawl to capture pelagic species throughout the water column. The mouth of the net typically ranges from 361 to 558 ft (110 m to 170 m) and requires the use of large vessels (Sainsbury 1996). Successful mid-water trawling requires the effective use of various electronic aids to find the fish and maneuver the vessel while fishing (Sainsbury 1996). Tows typically last for several hours and catches are large. Fishermen usually remove the fish from the net while it remains in the water alongside the vessel by means of a suction pump. Some fishermen remove the fish the net by repeatedly lifting the codend aboard the vessel until the entire catch is in the hold.

Bottom otter trawls account for nearly all commercial bottom trawling activity. There is a wide range of otter trawl types used in the Northeast due to the diversity of fisheries and bottom types encountered in the region (Northeast Region Essential Fish Habitat Steering Committee 2002). The specific gear design used is often a result of the target species (whether found on or off the bottom) as well as the composition of the bottom (smooth versus rough and soft versus hard). A number of different types of bottom otter trawl used in the Northeast are specifically designed to catch certain species of fish, on specific bottom types, and at particular times of year. Fishermen tow bottom trawls at a variety of speeds, but average about 5.6 km/hour (3 knots). Several federal FMPs manage the use of this gear. Bottom trawling is also subject to a variety of state regulations throughout the region.

A flatfish trawl is a type of bottom otter trawl designed with a low net opening between the headrope and the footrope and more ground rigging on the sweep. This type of trawl is designed so that the sweep follows the contours of the bottom, and to get fish like flounders. Flounders that lie in contact with the seafloor and flatfish trawls look to get flounder up off the bottom and into the net. It is used on smooth mud and sand bottoms. A high-rise or fly net with larger mesh has a wide net opening and is used to catch demersal fish that tend to rise higher off the bottom than flatfish (Northeast Region Essential Fish Habitat Steering Committee 2002).

Bottom otter trawls are rigged with rockhopper gear for use on "hard" bottom (i.e., gravel or rocky bottom), mud or sand bottom with occasional boulders. This type of gear seeks to sweep over irregularities in the bottom without damaging the net. The sweep in trawls rigged for fishing on smooth bottoms looks to herd fish into the path of the net (Mirarchi 1998).

The raised-footrope trawl was designed to provide vessels with a means of continuing to fish for small-mesh species without catching groundfish. Raised-footrope trawls fish about 1.6 to 2.0 ft (0.5 to 0.6 m) above the bottom (Carr and Milliken 1998). Although the doors of the trawl still ride on the bottom, underwater video and observations in flume tanks have confirmed that the sweep in the raised-footrope trawl has much less contact with the seafloor than the traditional cookie sweep (Carr and Milliken 1998).

The haddock separator trawl and Ruhle trawl (bottom trawls), are used to minimize the catch of cod. The design of these gears considers the behavior of fish in response to gear. A haddock separator trawl is a groundfish trawl modified to a vertically oriented trouser trawl configuration. It has two extensions arranged one over the other. A codend is attached to the upper extension, and the bottom extension is left open with no codend attached. A horizontal large mesh separating panel constructed with a minimum of 6-inch diamond mesh must be installed between the selvedges joining the upper and lower panels [648.85(a)(3)(iii)(A)]. Haddock generally swim to the upper part of a net and cod swim to the lower part of the net. By inserting a mesh panel in the net, and using two codends, the net effectively divides the catch. The cod can escape if the codend on the lower part of the net is left open (NEFMC 2003). Overall,

the haddock separator trawl has had mixed results in commercial fishing operations. The expected ratios of haddock to cod have not been realized. Catches of other demersal species, such as flounders, skates, and monkfish, have also been higher than expected. However, the separator trawl has reduced catches of these species compared to normal fishing practices (NEFMC 2009a).

The Ruhle trawl (previously known as the haddock rope trawl or eliminator trawl) is a four-seam bottom groundfish trawl with a rockhopper. It is designed to reduce the bycatch of cod while retaining or increasing the catch of haddock and other healthy stocks [648.85(b)(6)(iv)(J)(*3*)]. NMFS approved the Ruhle trawl for use in the DAS program and in the Eastern U.S./Canada Haddock SAP on July 14, 2008 (73 FR 40186) after nearly two years of testing to determine efficacy. Experiments comparing traditional and the new trawl gear showed that the Ruhle trawl reduced bycatch of cod and flounders, while simultaneously retaining the catch of healthier stocks, primarily haddock. The large, 8-foot mesh in the forward end (the wings) of the Ruhle trawl net allows cod and other fish to escape because of their body shapes and unique behavior around the netting (NOAA 2008).

Gillnet Gear

Sectors would also use individual sink/anchor gillnets which are about 295 ft (90 m) long. They are usually fished as a series of 5 to 15 nets attached end-to-end. A vast majority of "strings" consist of 10 gillnets. Gillnets typically have three components: the leadline, webbing, and floatline. In New England, leadlines are approximately 66 lbs/net (30 kilogram (kg)/net). Webs are monofilament, with the mesh size depending on the species of interest. Nets are anchored at each end using materials such as pieces of railroad track, sash weights, or Danforth anchors, depending on currents. Anchors and leadlines have the most contact with the bottom. For New England groundfish, frequency of tending gillnets ranges from daily to semiweekly (Northeast Region Essential Fish Habitat Steering Committee 2002).

A bottom gillnet is a large wall of netting equipped with floats at the top and lead weights along the bottom. Bottom gillnets are anchored or staked in position. Fish are caught while trying to pass through the net mesh. Gillnets are highly selective because the species and sizes of fish caught are dependent on the mesh size of the net. The meshes of individual gillnets are uniform in size and shape, hence highly selective for a particular size of fish (Jennings et al. 2001). Bottom gillnets are fished in two different ways, as "standup" and "tiedown" nets (Williamson 1998). Standup nets typically catch Atlantic cod, haddock, pollock, and hake and are soaked (duration of time the gear is set) for 12 to 24 hours. Tiedown nets are set with the floatline tied to the leadline at 6-ft (1.8 m) intervals, so that the floatline is close to the bottom and the net forms a limp bag between each tie. They are left in the water for 3-4 days, and are used to catch flounders and monkfish.

Fish Traps/Pots

Some sectors would use fish traps/pots. This EA assumes these traps/pots are similar to lobster pots. Lobster pots are typically rectangular and consist of two sections, the chamber and the parlor. The chamber has an entrance on both sides of the pot and usually contains the bait. Lobsters enter the parlor via a tunnel (Everhart and Youngs 1981). Escape vents in both areas of the pot minimize the retention of sub-legal sized lobsters (DeAlteris 1998).

Lobster pots are fished as either a single pot per buoy (although two pots per buoy are used in Cape Cod Bay, and three pots per buoy in Maine waters), or a "trawl" or line with up to one hundred pots. The Northeast Fishery Science Center (NEFSC 2002) provides the following important features of lobster pots and their use:

- About 95 percent of lobster pots are made of plastic-coated wire.
- Floating mainlines may be up to 25 ft (8 m) off bottom; sinking groundlines are used where entanglements with marine mammals are a concern.

- Soak time depends on season and location - usually 1 to 3 days in inshore waters in warm weather to weeks in colder waters.
- Offshore pots are larger [more than 4 ft (1 m) long] and heavier (~ 100 lbs or 45 kg), with an average of about 40 pots/trawl and 44 trawls/vessel. They have a floating mainline and are usually deployed for a week at a time.

Hook and Line Gear

Hand Lines/Rod and Reel

Sectors would also use handlines. The simplest form of hook and line fishing is the hand line. It may be fished using a rod and reel or simply "by hand." The gear consists of a line, sinker (weight), gangion, and at least one hook. The line is typically stored on a small spool and rack and varies in length. The sinkers vary from stones to cast lead. The hooks can vary from single to multiple arrangements in "umbrella" rigs. Fishermen use an attraction device such as natural bait or an artificial lure with the hook. Hand lines can be carried by currents until retrieved or fished in such a manner as to hit bottom and bounce (Stevenson et al. 2004). Fishermen use hand lines as well as rods and reels in the Northeast Region to catch a variety of demersal species.

Mechanized Line Fishing

Mechanized line-hauling systems use electrical or hydraulic power to work the lines on the spools. They allow smaller fishing crews to work more lines. Fishermen mount the reels, also called "bandits," on the vessel bulwarks with the mainline wound around a spool. They take the line from the spool over a block at the end of a flexible arm. Each line may have a number of branches and baited hooks.

Fishermen use jigging machines to jerk a line with several unbaited hooks up in the water to attract a fish. Fishermen generally fish jigging machine lines in waters up to 1,970 ft (600 m) deep. Hooks and sinkers can contact the bottom. Depending upon the way the gear is used, it may catch a variety of demersal species.

Bottom Longlines

Sectors would also use bottom longlines. This gear consists of a long length of line to which short lengths of line ("gangions") carrying baited hooks are attached. Longlining is undertaken for a wide range of bottom species. Bottom longlines typically have up to six individual longlines strung together for a total length of more than 1,476 ft (450 m) and are deployed with 20 to 24 lbs (9 to 11 kg) anchors. The mainline is a parachute cord. Gangions are typically 16 in (40 cm) long and 3 to 6 in (1 to 1.8 m) apart and are made of shrimp twine. These bottom longlines are usually set for a few hours at a time (Northeast Region Essential Fish Habitat Steering Committee 2002).

All hooks must be 12/0 circle hooks. A "circle hook is a hook with the point turned back towards the shank. The barbed end of the hook is displaced (offset) relative to the parallel plane of the eyed-end or shank of the hook when laid on its side. Habitat impacts from bottom long lines are negligible.

4.2.4.2 Gear Interaction with Habitat

Commercial fishing in the region has historically used trawls, gillnets, and bottom longline gear. Fishermen have intensively used trawls throughout the region for decades and currently account for the majority of commercial fishing activity in the multispecies fishery off New England.

Amendment 13 (NEFMC 2003) describes the general effects of bottom trawls on benthic marine habitats. This analysis primarily uses an advisory report prepared for the International Council for the Exploration of the Seas. This report identified a number of possible effects of bottom otter trawls on benthic habitats (International Council for the Exploration of the Seas 2000). The International Council for the Exploration of the Seas report is based on scientific findings summarized in Lindeboom and de Groot (1998). The report focuses on the Irish Sea and North Sea, but assesses effects in other areas. The report generally concluded that: (1) low-energy environments are more affected by bottom trawling; and (2) bottom trawling affects the potential for habitat recovery (i.e., after trawling ceases, benthic communities and habitats may not always return to their original pre-impacted state). The report also concluded the following about direct habitat effects:

- Loss or dispersal of physical features such as peat banks or boulder reefs results in <u>changes that are always permanent</u> and lead to an overall change in habitat diversity. This in turn leads to the local loss of species and species assemblages dependent on such features;
- Loss of structure-forming organisms such as bryozoans, tube-dwelling polychaetes, hydroids, seapens, sponges, mussel beds, and oyster beds results in <u>changes that may be permanent</u> leading to an overall change in habitat diversity. This in turn leads to the local loss of species and species assemblages dependent on such biogenic features;
- <u>Changes are not likely to be permanent</u> due to a reduction in complexity caused by redistributing and mixing of surface sediments and the degradation of habitat and biogenic features, leading to a decrease in the physical patchiness of the seafloor; and
- <u>Changes are not likely to be permanent</u> due to alteration of the detailed physical features of the seafloor by reshaping seabed features such as sand ripples or damaging burrows and associated structures that provide important habitats for smaller animals and can be used by fish to reduce their energy requirements.

The Committee on Ecosystem Effects of Fishing for the National Research Council's Ocean Studies Board (National Research Council 2002) prepared a more recent evaluation of the habitat effects of trawling and dredging. Trawl gear evaluated included bottom otter trawls. This report identified four general conclusions regarding the types of habitat modifications caused by trawls:

- Trawling reduces habitat complexity;
- Repeated trawling results in discernible changes in benthic communities;
- Bottom trawling reduces the productivity of benthic habitats; and
- Fauna that live in low natural disturbance regimes are generally more vulnerable to fishing gear disturbance.

The report from a "Workshop on the Effects of Fishing Gear on Marine Habitats off the Northeastern U.S." sponsored by the NEFMC and Mid-Atlantic Fishery Management Council (MAFMC) (NEFSC 2002) provides additional information for various Northeast region gear types. A panel of fishing industry members and experts in the fields of benthic ecology, fishery ecology, geology, and fishing gear technology convened for the purpose of assisting the NEFMC, MAFMC, and NMFS with:

- evaluating the existing scientific research on the effects of fishing gear on benthic habitats;
- determining the degree of impact from various gear types on benthic habitats in the Northeast;

- specifying the type of evidence that is available to support the conclusions made about the degree of impact;
- ranking the relative importance of gear impacts to various habitat types; and
- providing recommendations on measures to minimize those adverse impacts.

The panel was provided with a summary of available research studies that summarized information relating to the effects of bottom otter trawls, bottom gillnets, and bottom longlines. Relying on this information plus professional judgment, the panel identified the effects and the degree of impact of these gears on mud, sand, and gravel/rock habitats.

The panel's report provides additional information on the recovery times for each type of impact for each gear type in mud, sand, and gravel habitats ("gravel" includes other hard-bottom habitats). This information made it possible for the panel to rank these three substrates in terms of their vulnerability to the effects of bottom trawling. The report also notes that other factors such as frequency of disturbance from fishing and from natural events are also important. In general, the panel determined that impacts from trawling are greater in gravel/rock habitats with attached epifauna. The panel ranked impacts to biological structure higher than impacts to physical structure. Effects of trawls on major physical features in mud (deep water clay-bottom habitats) and gravel bottom were described as permanent. Impacts to biological and physical structure were given recovery times of months to years in mud and gravel. Impacts of trawling on physical structure in sand were of shorter duration (days to months) given the exposure of most continental shelf sand habitats to strong bottom currents and/or frequent storms.

According to the panel, impacts of sink gillnets and bottom longlines on sand and gravel habitats would result in low degree impacts (NEFSC 2002). Duration of impacts to physical structures from these gear types would be expected to last days to months on soft mud, but could be permanent on hard bottom clay structures along the continental slope. Impacts to mud would be caused by gillnet lead lines and anchors. Physical habitat impacts from sink gillnets and bottom longlines on sand would not be expected.

Amendment 13 also summarizes the contents of a second expert panel report, produced by the Pew Charitable Trusts and entitled "Shifting Gears: Addressing the Collateral Impacts of Fishing Methods in U.S. Waters" (Morgan and Chuenpagdee 2003). This group evaluated the habitat effects of 10 different commercial fishing gears used in U.S. waters. The report concluded that bottom trawls have relatively high habitat impacts; bottom gillnets and pots and traps have low to medium impacts; and bottom longlines have low impacts. As in the International Council for the Exploration of the Seas and National Research Council reports, the panel did not evaluate individual types of trawls and dredges. The impacts of bottom gillnets, traps, and bottom longlines were limited to warm or shallow water environments with rooted aquatic vegetation or "live bottom" environments (e.g., coral reefs).

4.3 ALLOCATED TARGET SPECIES

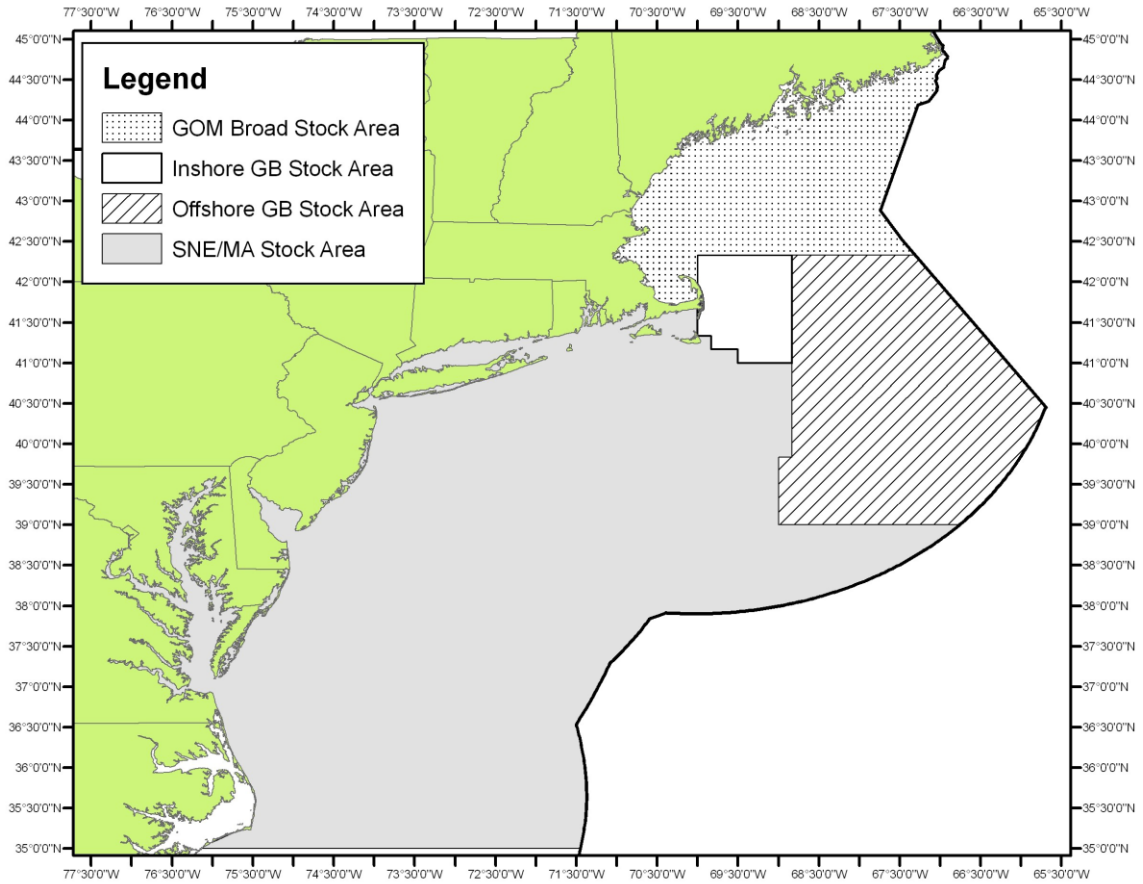
This section describes the life history and stock population status for each allocated fish stock the sectors harvest under the Northeast Multispecies FMP. Figure 4.3.1-1 identifies the four broad stock areas used in the fishery. Please refer to the species habitat associations described in Section 4.2 for information on the interactions between gear and species. Section 4.2 also provides a comparison of depth-related demersal fish assemblages of Georges Bank and the Gulf of Maine. This section concludes with an analysis of the interaction between the gear types the sectors intend to use (as described in Section 4.2.4.1) and allocated target species. The following discussions have been adapted from the GARM III report (NEFSC 2008) and the EFH Source Documents: Life History and Habitat Characteristics are assessable via the NEFSC website at http://www.nefsc.org (NEFSC 2010).

4.3.1 Species and Stock Status Descriptions

The allocated target stocks for the sectors 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.

Figure 4.3.1-1 Broad stock areas as defined in Amendment 16



Spiny dogfish, skates, and monkfish are considered in this EA as "non-allocated target species and bycatch" in Sections 4.4 and 5.1. Northeast Multispecies FMP does no allocate these species. They and are managed under their own FMPs.

The Northeast Multispecies FMP also manages Atlantic halibut, ocean pout, windowpane flounder, and SNE/MA winter flounder. However, sectors do not receive an allocation of these species. Sector and common pool vessels cannot land wolffish, ocean pout, windowpane flounder, and inshore GB and SNE/MA winter flounder, but can retain one halibut per trip. Wolffish are provisionally managed under the Northeast Multispecies FMP Amendment 16 to the Northeast Multispecies FMP (NEFMC 2009a) addresses these species. Therefore, this EA does not further discuss these species.

4.3.1.1 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: Gulf of Maine and Georges Bank. GOM cod attain sexual maturity at a later age than GB cod due to differences in growth rates between the two stocks. The greatest concentrations of cod off the Northeast coast of the U.S. are on rough bottoms in waters between 33 and 492 ft (10 and 150 m) and at temperatures between 32 and 50°F (0 and 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 and 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 three month until reaching 1.6 to 2.3 in (4 to 6 cm), at which point they descend to the seafloor. Most remain on the bottom after this descent, and there is no evidence of a subsequent diel, vertical migration. Adults tend to move in schools, usually near the bottom, but also occurring in the water column.

Population Status: The inshore 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 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 percent of the biomass rebuilding target. Currently, the GOM cod stock is overfished and overfishing is occurring.

4.3.1.2 Georges Bank Cod

Life History: The GB cod stock, *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 and 150 m) and at temperatures between 32 and 50° F (0 and 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 and 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 to 6 cm), at which point they descend to the seafloor. Most remain on the bottom after this descent, 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 are a transboundary stock harvested by both the U.S. and Canadian fishing fleets. The GB cod stock is overfished and overfishing is occurring.

4.3.1.3 Gulf of Maine Haddock

Life History: The GOM haddock, *Melanogrammus aeglefinus*, is a commercially-exploited groundfish found in the North Atlantic Ocean. This demersal gadoid species occurs from Cape May, New Jersey to the Strait of Belle Isle, Newfoundland in the western North Atlantic. A total of six distinct haddock stocks have been identified. Two of these haddock stocks occur in U.S. waters associated with Georges Bank and the Gulf of Maine.

Haddock are highly fecund broadcast spawners. They spawn over various substrates including rocks, gravel, smooth sand, and mud. Haddock release their eggs near the ocean bottom in batches where a courting male then fertilizes them. After fertilization, haddock eggs become buoyant and rise to the surface water layer. In the Gulf of Maine, spawning occurs from early February to May, usually peaking in February to April. Jeffreys Ledge and Stellwagen Bank are the two primary spawning sites in the Gulf of Maine. Fertilized eggs are buoyant and remain in the water column where subsequent development occurs. Larvae metamorphose into juveniles in roughly 30 to 42 days at lengths of 0.8 to 1.1 in (2 to 3 cm). Small juveniles initially live and feed in the epipelagic zone. Juveniles remain in the upper part of the water column for 3 to 5 months. Juveniles visit the ocean bottom in search of food. Juveniles settle into a demersal existence once they locate suitable bottom habitat. Haddock do not make extensive seasonal migrations. Haddock prefer deeper waters in the winter and tend to move shoreward in summer.

Population Status: The GOM haddock stock is not overfished but overfishing is 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.

4.3.1.4 Georges Bank Haddock

Life History: The general life history of GB haddock, *Melanogrammus aeglefinus*, is comparable to the GOM haddock as described above. On Georges Bank, spawning occurs from January to June, usually peaking from February to early-April. Georges Bank is the principal haddock spawning area in the Northeast U.S. Shelf Ecosystem. GB haddock spawning concentrates on the northeast peak of Georges Bank.

Median age and size of maturity differ slightly between the GB and GOM haddock stocks. GARM III found that the GOM fishery does not target haddock. The fleet directs mostly at flatfish using large square (6.5 inch [16.5 cm]) mesh gear. This leads to reduced selectivity on haddock. The GOM haddock have lower weights at age than the GB stock and the age at 50 percent maturity was also lower for GOM haddock than GB haddock.

Population Status: The GB haddock stock is a transboundary resource co-managed with Canada. 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. The stock is not overfished and overfishing is not occurring. The fishing mortality rate for this stock has been low in recent years.

4.3.1.5 American Plaice

Life History: The American plaice, *Hippoglossoides platessoides*, is an arctic-boreal to temperate-marine pleuronectid (righteye) flounder that inhabits both sides of the North Atlantic on the continental shelves of northeastern North America and northern Europe. 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. They release 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 will drift into the upper water column after release. Eggs hatch at the surface and the amount of time between fertilization and hatching varies with the water temperature. Transformation of the larvae and migration of the left eye begins when the larvae are approximately 0.8 in (20 millimeters (mm)). Dramatic physiological transformations occur during the juvenile stage. The body shape continues to change, flattening and increasing in depth from side to side. 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, American plaice is a sedentary species migrating only for spawning and feeding.

Population Status: In the Gulf of Maine and Georges Bank area, the American plaice stock is not overfished and overfishing is not occurring. However, a stock assessment conducted in 2012 indicates that the stock will not rebuild by 2014, the currently specified rebuilding target date, even if no fishing is allowed on the stock in FY 2013. Because of this inadequate rebuilding progress, a revised rebuilding program is necessary and will be developed for use no later than May 1, 2014.

4.3.1.6 Witch Flounder

Life History: The 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. NMFS manages witch flounder 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 to 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 and 50 °F (0 to 10°C).

Population Status: Witch flounder are overfished and overfishing is occurring.

4.3.1.7 Gulf of Maine Winter Flounder

Life History: The 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. NMFS manages and assesses winter flounder 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. Winter flounder spawn from winter through spring, with peak spawning occurring 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. The eggs of winter flounder are demersal, adhesive, and stick together in clusters. Larvae are initially planktonic but become increasingly bottom-oriented as metamorphosis approaches. Metamorphosis is when the left eye migrates to the right side of the body and the larvae become "flounder-like". It begins around 5 to 6 weeks after hatching, and finishes by the time the larvae are 0.3 to 0.4 in (8 to 9 mm) in length at about 8 weeks after hatching. Newly metamorphosed young-of-the-year winter flounder reside in shallow water where individuals may grow to about 4 in (100 mm) within the first year.

Population Status: The exact status determination for GOM winter flounder is unknown. Overfishing is not occurring.

4.3.1.8 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 described above.

Population Status: The stock is not overfished and not undergoing overfishing.

4.3.1.9 Cape Cod/Gulf of Maine Yellowtail Flounder

Life History: The yellowtail flounder, *Limanda ferruginea*, is a demersal flatfish that occurs from Labrador to Chesapeake Bay. It generally inhabits depths between 131 to 230 ft (40 and 70 m). NMFS manages three stocks off the U.S. coast including the Cape Cod/GOM, GB, and SNE/MA stocks. Spawning occurs in the western North Atlantic from March through August at temperatures of 41 to 54 °F (5 to 12°C). Spawning takes place along continental shelf waters 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 to 0.6 in (11.6 to 16 mm) standard length. There are high concentrations of adults around Cape Cod in both spring and autumn. The median age at maturity for females is 2.6 years off Cape Cod.

Population Status: The Cape Cod/GOM yellowtail flounder stock continues to be overfished and overfishing is continuing. However, fishing mortality has been declining since 2004 and was at the lowest level observed in the time series in 2009. Spawning stock biomass has increased the past few years.

4.3.1.10 Georges Bank Yellowtail Flounder

Life History: The general life history of the GB yellowtail flounder, *Limanda ferruginea*, is comparable to the Cape Cod/GOM yellowtail described above. The median age at maturity for females is 1.8 years on Georges Bank. Spawning takes place along continental shelf waters of Georges Bank.

Population Status: GB yellowtail flounder is overfished, and overfishing is occurring.

4.3.1.11 Southern New England/Mid-Atlantic Yellowtail Flounder

Life History: The general life history of the SNE/MA yellowtail flounder, *Limanda ferruginea*, is comparable to the Cape Cod/GOM yellowtail described above. The median age at maturity for females is 1.6 years off southern New England.

Population Status: Based on a 2012 assessment, the SNE/MA yellowtail flounder stock is not overfished, not subject to overfishing, and is rebuilt. 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.

4.3.1.12 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. NMFS manages Acadian redfish inhabiting the U.S. waters of the Gulf of Maine and deeper portions of Georges Bank and the Great South Channel as a unit stock.

The redfish are a slow growing, long-lived, ovoviviparous species with an extremely low natural mortality rate. 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 to 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 to 1.0 in (10 to 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 to 2.0 in (40 to 50 mm) at 4 to 5 months old. Therefore, young-of-the-year typically move to the bottom by early fall of their first year. Redfish of 9 in (22 cm) or greater are considered adults. In general, the size of landed redfish positively correlates with depth. This may be due to a combination of 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, redfish fertilization is internal and fecundity is relatively low.

Population Status: The redfish stock is not overfished and overfishing is not occurring.

4.3.1.13 Pollock

Life History: Pollock, *Pollachius virens*, occur on both sides of the North Atlantic. In the western North Atlantic, the species 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 column cools to near 46 °F (8°C) and peaks when

temperatures are approximately 40 to 43 °F (4.5 to 6°C). Thus, most spawning occurs within a comparatively narrow range of temperatures.

Pollock eggs are buoyant and rise into the water column after fertilization. The pelagic larval stage lasts for 3 to 4 months. At this time 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 this 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. This similar trend has also been reported in other marine fish species such as haddock and witch flounder.

Population Status: The pollock stock is not subject to overfishing, is not overfished, and was declared rebuilt in 2010.

4.3.1.14 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 to 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.

Population Status: The 2008 assessment for white hake concluded the stock was overfished and overfishing was occurring. A new comprehensive stock assessment is planned for early 2013.

4.3.2 Assemblages of Fish Species

Georges Bank and the Gulf of Maine have historically had high levels of fish production. Several studies have identified demersal fish assemblages over large spatial scales. Overholtz and Tyler (1985) found five depth-related groundfish assemblages for Georges Bank and the Gulf of Maine that were persistent temporally and spatially. The study identified depth and salinity as major physical influences explaining assemblage structure. Table 4.2.2-1(adapted from Amendment 16) compares the six assemblages identified in Gabriel (1992) with the five assemblages from Overholtz and Tyler (1985). This EA considers these assemblages and relationships to be relatively consistent. Therefore, these descriptions generally describe the affected area. The assemblages include allocated target species, as well as non-allocated target species and bycatch. The terminology and definitions of habitat types in Table 4.2.2-1 vary slightly between the two studies. For further information on fish habitat relationships, see Table 4.1.2-1.

Table 4.2.2-1 Comparison of Demersal Fish Assemblages of Georges Bank and the Gulf of Maine			
Overholtz and Tyler (1985)		**Gabriel (1992)**	
Assemblage	**Species**	**Species**	**Assemblage**
Slope and Canyon	offshore hake, blackbelly rosefish, Gulf stream flounder, fourspot flounder, goosefish, silver hake, white hake, red hake	offshore hake, blackbelly rosefish, Gulf stream flounder, fawn cusk-eel, longfin hake, armored sea robin	Deepwater
Intermediate	silver hake, red hake, goosefish, Atlantic cod, haddock, ocean pout, yellowtail flounder, winter skate, little skate, sea raven, longhorn sculpin	silver hake, red hake, goosefish, northern shortfin squid, spiny dogfish, cusk	Combination of Deepwater Gulf of Maine/Georges Bank and Gulf of Maine-Georges Bank Transition
Shallow	Atlantic cod, haddock, pollock, silver hake, white hake, red hake, goosefish, ocean pout	Atlantic cod, haddock, pollock	Gulf of Maine-Georges Bank Transition Zone
	yellowtail flounder, windowpane winter flounder, winter skate, little skate, longhorn sculpin, summer flounder, sea raven, sand lance	yellowtail flounder, windowpane winter flounder, winter skate, little skate, longhorn sculpin	Shallow Water Georges Bank-southern New England
Gulf of Maine-Deep	white hake, American plaice, witch flounder, thorny skate, silver hake, Atlantic cod, haddock, cusk, Atlantic wolffish	white hake, American plaice, witch flounder, thorny skate, redfish	Deepwater Gulf of Maine-Georges Bank
Northeast Peak	Atlantic cod, haddock, pollock, ocean pout, winter flounder, white hake, thorny skate, longhorn sculpin	Atlantic cod, haddock, pollock	Gulf of Maine-Georges Bank Transition Zone

4.3.3 Stock Status Trends

The most recent stock assessments for groundfish stocks can be found via the NEFSC website at http://www.nefsc.noaa.gov/saw/. The information in this section is adapted from the most recent stock assessment report for the groundfish stocks. Table 4.2.3-1 summarizes the status of the northeast groundfish stocks.

The F_{MSY} is the fishing mortality rate (F) that produces the maximum sustainable yield (MSY), defined as the largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological and environmental conditions (National Standards Guidelines 50 CFR 600.310)

Table 4.2.3-1 Status of the Northeast Groundfish Stocks for fishing year 2013	
Stock Status	**Stock (assessment source)**
Overfished and Overfishing Biomass < ½ B_{MSY} and F > F_{MSY}	GB Cod (GARM III) GOM Cod (SARC 54) Cape Cod/GOM Yellowtail Flounder (assessment update) White Hake (GARM III,) Witch Flounder (assessment update) Northern Windowpane (operational assessment) GB Yellowtail Flounder (2012 TRAC)
Overfished but not Overfishing Biomass < ½ B_{MSY} and F ≤ F_{MSY}	Ocean Pout (assessment update) Atlantic Halibut (assessment update) GOM Winter Flounder (SARC 52)[b] Atlantic wolffish (assessment update) SNE/MA Winter Flounder
Not Overfished but Overfishing Biomass ≥ ½ B_{MSY} and F > F_{MSY}	GOM Haddock (assessment update)
Not Overfished and not Overfishing Biomass ≥ ½ B_{MSY} and F ≤ F_{MSY}	Pollock (SARC 50) Acadian Redfish (assessment update) SNE/MA yellowtail flounder (SARC 54) American Plaice (assessment update) GB Haddock (assessment update) GB Winter Flounder(SARC 52) Southern Windowpane (assessment update)

Notes:

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

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

[b] Rebuilding, but no defined rebuilding program due to a lack of data. Unknown whether the stock is overfished.

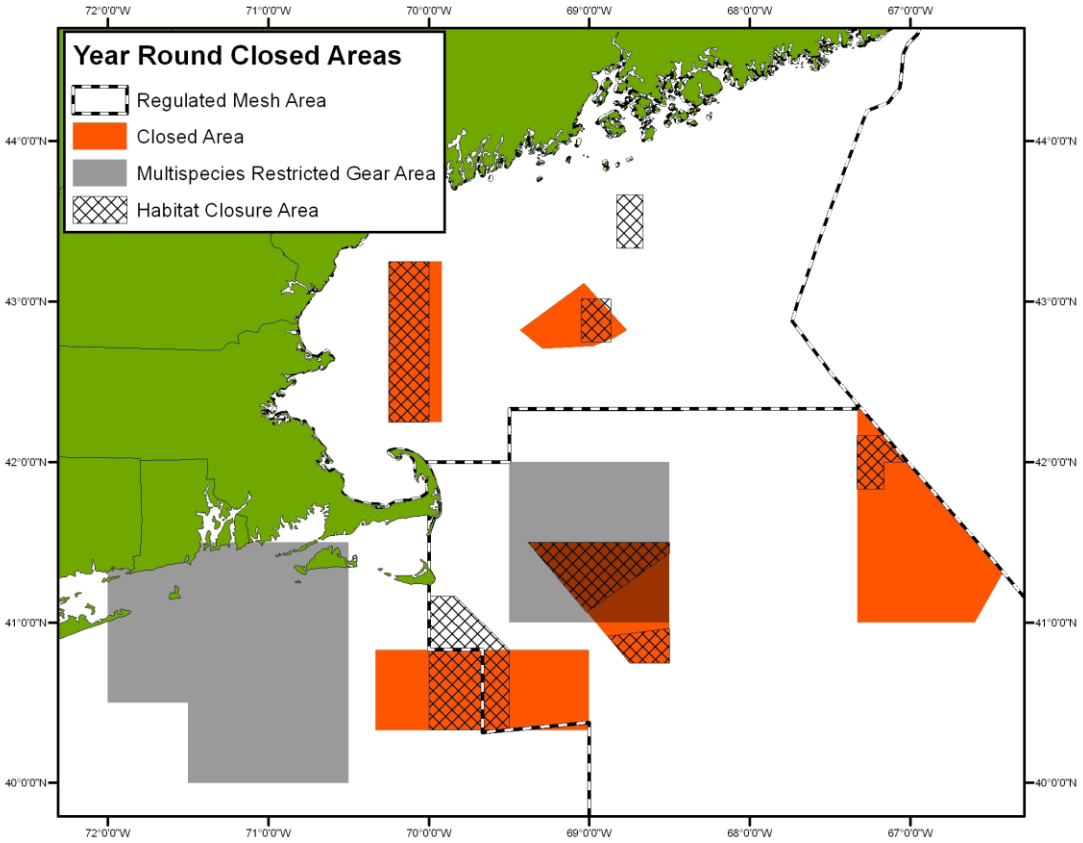
Assessment references (available at http://www.nefsc.noaa.gov/saw/)
Northeast Fisheries Science Center. 2008. Assessment of 19 Northeast Groundfish Stocks through 2007: Report of the 3rd Groundfish Assessment Review Meeting (GARM III), Northeast Fisheries Science Center, Woods Hole, Massachusetts, August 4-8, 2008. US Dep Commer, NOAA Fisheries, Northeast Fish Sci Cent Ref Doc. 08-15; 884 p + xvii.
Northeast Fisheries Science Center. 2010. 50th Northeast Regional Stock Assessment Workshop (50th SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 10-17; 844 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026
Northeast Fisheries Science Center. 2011. 52nd Northeast Regional Stock Assessment Workshop (52nd SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 11-17; 962 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026
Northeast Fisheries Science Center. 2012. 53rd Northeast Regional Stock Assessment Workshop (53rd SAW) Assessment Summary Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 12-03; 33 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026
Northeast Fisheries Science Center. 2012. 54th Northeast Regional Stock Assessment Workshop (54th SAW) Assessment Summary Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 12-14; 40 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026,
Northeast Fisheries Science Center. 2012. Assessment or Data Updates of 13 Northeast Groundfish Stocks through 2010. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 12-06; 789 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026

4.3.4 Areas Closed to Fishing

Select areas are closed to some level of fishing to protect the sustainability of fishery resources. Long-term closures result in the removal or reduction of fishing effort from important fishing grounds. Therefore, fishery related mortalities to stocks utilizing the closed areas should decrease. Figure 4.3.4-1 shows the Closed Areas for FY 2012.

Amendment 13 to the Northeast Multispecies FMP and Amendment 10 of the Atlantic Sea Scallop FMP established year-round habitat closed areas which are off-limits to all mobile, bottom-tending gear like trawls and dredges. These closures were designed to minimize the adverse effects of fishing on EFH for species managed by the NEFMC (Table 4.1.2-1). In many cases, these closed areas overlap portions of the groundfish mortality closures (see Figure 4.3.4-1). However, in other cases (Jeffreys Bank in the Gulf of Maine and the area southeast of Nantucket Island) they do not. NEFMC Omnibus EFH Amendment 2 is currently evaluating the closed habitat areas. Therefore, these areas may be changed or eliminated in the future. In addition, portions of four submarine canyons on the outer continental shelf are closed to all bottom trawling in order to protect vulnerable habitats for tilefish. Detailed descriptions and maps of these areas are available in Amendment 1 to the MAFMC Tilefish FMP.

Figure 4.3.4-1 Northeast Multispecies Closed Areas and U.S/Canada



4.3.5 Interaction between Gear and Allocated Target Species

FY 2010 through FY 2011 data show allocated target species catch by gear type (Table 4.1.5-1). This data show that the majority of fish of all species caught on groundfish trips are caught with trawls. GARM III indicated that only cod and white hake are caught in significant numbers by gillnets. Only haddock are caught in significant numbers by hook and line.

4.4 NON-ALLOCATED TARGET SPECIES AND BYCATCH

As defined in Section 1.1.1, non-allocated target species are species which sector vessels are not assigned an ACE but can target and land. Bycatch refers to fish which are harvested in a fishery, but are discarded and not sold or kept for personal use. Non-allocated target species and bycatch may include a broad range of species. For purposes of this assessment the non-allocated target species and bycatch most likely to be affected by the sector operations plans include spiny dogfish, skates, and monkfish. This approach follows the convention established in Amendment 16. Spiny dogfish, skates, and monkfish were the top three non-groundfish species landed by multispecies vessels in FY 2006 and FY 2007 under the Category B (regular) DAS program (Amendment 16, Table 87). American lobster is also included as a non-target bycatch species for FY 2012 because many sector vessels also fish in the lobster fishery. These species have no allocation under the Northeast Multispecies FMP and are managed under separate FMPs. Fishermen commonly land monkfish and skates. Spiny dogfish tend to be relatively abundant in catches. Fishermen may land some spiny dogfish, but dogfish are often the predominant component of the discarded bycatch. Fishermen may discard monkfish when regulations or market conditions constrain the amount of the catch that they can land.

Atlantic halibut, Gulf of Maine-Georges Bank windowpane flounder, Southern New England-Mid-Atlantic Bight windowpane flounder, ocean pout, Atlantic wolffish, and Southern New England/Mid-Atlantic (SNE/MA) winter flounder are part of the Multispecies FMP, but are not allocated to sectors. Therefore, impacts to these species are assessed under this VEC as bycatch.

4.4.1 Spiny Dogfish

Life History: The spiny dogfish, *Squalus acanthias*, occurs in the western North Atlantic from Labrador to Florida. Regulators consider spiny dogfish 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 about 18 to 22 months, and produce between 2 to 15 pups with an average of 6. Size at maturity for females is around 31 in (80 cm), but can vary from 31 to 33 in (78 cm to 85 cm) depending on the abundance of females.

Population Management and Status: The NEFMC and MAFMC jointly develop the spiny dogfish FMP for federal waters. The Atlantic States Marine Fisheries Commission (ASMFC) concurrently develops a plan for state waters. 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 updated stock assessment performed by the Northeast Fisheries Science Center, the spiny dogfish stock is not presently overfished and overfishing is not occurring. NMFS declared the spiny dogfish stock rebuilt for the purposes of U.S. management in May 2010.

4.4.2 Skates

Life History: The seven species in the Northeast Region skate complex are: 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. Skates tend to move seasonally in response to changes in water temperature. Therefore, 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 to 12 months, with the young having the adult form at the time of hatching.

Population Management and Status: NMFS implemented the Northeast Skate Complex Fishery Management Plan (Skate FMP) in September 2003. The FMP required by both dealers and vessels to report skate landings by species (http://www.nefmc.org/skates/fmp/fmp.htm). 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. Amendment 3 also reduced possession limits, in-season possession limit triggers, and 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.

4.4.3 Monkfish

Life History: Monkfish, *Lophius americanus*, also called 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. These migrations may relate to spawning or possibly to food availability.

Female monkfish begin to mature at age 4 with 50 percent of females maturing by age 5 (about 17 in [43 cm]). Males generally mature at slightly younger ages and smaller sizes (50 percent 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 about 1 to 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 about 3 in (8 cm).

Population Management and Status: NMFS implemented the Monkfish FMP in 1999 (NEFMC and MAFMC 1998). 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. Monkfish in both management regions are not overfished and overfishing is not occurring.

4.4.4 American lobster

Life History: The American lobster, *Homarus americanus*, occurs in continental shelf waters from Maine to North Carolina. 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 external skeleton that is periodically cast off (molted) to allow growth and mating to take place. Eggs are carried under the female's abdomen during the 9 to 12 month incubation period. Larger lobsters produce eggs with greater energy content and thus, may produce larvae with higher survival rates (Attard and Hudon, 1987). Seasonal timing of egg extrusion and larval hatching is somewhat variable among areas and may also vary due to seasonal weather patterns. Overall, 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. They will molt more than 20 times over a period of 5 to 8 years before they reach the minimum legal size to be harvested. Cooper and Uzmann, (1971) and Uzmann, et al., (1977) observed that tagged lobster were observed to move to relatively cool deep canyon areas in late fall and winter, and then migrate back to shallower and relatively warm water in spring and summer

Population Management and Status: The states and NMFS cooperatively manage the American lobster resource and fishery under the framework of the Atlantic States Marine Fisheries Commission (ASMFC). States have jurisdiction for implementing measures in state waters, while NMFS implements complementary regulations in federal waters. Inshore landings have increased steadily since the early 1970s. 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 (within 3 miles of shore). The most recent peer-reviewed stock assessment for American lobster, published by the ASMFC in 2009, identifies the status of the three biological stock units, delineated primarily on the basis of regional differences in life history parameters, such as lobster distribution and abundance, patterns of migration, location of spawners, and the dispersal and transport of larvae. These stock units are the Gulf of Maine, Georges Bank, and Southern New England. While each 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).

4.4.5 Gulf of Maine-Georges Bank 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 and Klein-MacPhee 2002). Windowpane prefer sandy bottom habitats. They 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 between 32º-80ºF (0º-26.8ºC) (Moore 1947). On Georges Bank, the species is most abundant at depths < 60 m during late spring through autumn but overwintering occurs in deeper waters out 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 and 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'Brien 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 and Able 1995). Eggs incubate for 8 days at 50º-55ºF (10º-13ºC) and eye migration occurs approximately 17- 26 days after hatching (G. Klein-MacPhee, unpubl. data, as cited in Collette and 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.

Trawl survey data suggest that windowpane on Georges Bank aggregate in shallow water during summer and early fall and move offshore in the winter and early spring (Grosslein and Azarovitz 1982).

Population Status: Indices from NEFSC fall surveys are used as an indicator of stock abundance and biomass. 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 (NEFSC 2012). According to a 2012 assessment update, the stock was overfished and overfishing was occurring in 2010.

4.4.6 Southern New England-Mid-Atlantic Bight Windowpane Flounder

Life History: Windowpane flounder, *Scophthalmus aquosus*, is a left-eyed, flatfish species that occurs in the northwest Atlantic from the Gulf of St. Lawrence to Florida, with the greatest abundance on Georges Bank and in the New York Bight (Collettee and Klein-MacPhee 2002). Windowpane prefer sandy bottom habitats at depths < 180 ft (55 m), but they occur at depths from the high water mark to 656 ft (200 m) and at temperatures between 32º-80ºF (0º-26.8ºC) (Moore 1947). 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 and Azarovitz 1982). 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'Brien 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 and Able 1995). Eggs incubate for 8 days at 50º-55ºF (10º-13ºC) and eye migration occurs approximately 17- 26 days after hatching (G. Klein-MacPhee, unpubl. data, as cited in Collette and Klein-MacPhee 2002). During the first year, spring-spawned fish have significantly faster growth rates than autumn-spawned fish, which may lead to different natural mortality rates (Neuman et al. 2001).

Population Status: A 2012 assessment update indicated that in 2010 biomass was well above the B_{MSY} proxy (146%) and overfishing was not occurring (NEFSC 2012). As a result this stock has been declared rebuilt.

4.4.7 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 sand and gravel bottom (Orach-Meza 1975) at an average depth of 49-262 ft (15-80 m) (Clark and Livingstone 1982) and temperatures of 43º-48º F (6º-9º C) (Scott 1982). In U.S. 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 was 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 was 12.6 in (31.9 cm) and 12.3in (31.3 cm), respectively (O'Brien 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 and 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 and Crim 1995a) and females lay egg masses in 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 and Brown 1991; Yao and Crim 1995a).

Population Status: Between 1975 and 1985, NEFSC spring trawl survey biomass indices increased to record high levels, peaking in 1981and 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. A 2012 assessment update determined that in 2010 ocean pout was overfished, but overfishing was not occurring (NEFSC 2012).

4.4.8 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 and 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 to 240 m) (Nelson and Ross 1992) and at temperatures of 29.7º-50.4º F (-1.3º-10.2º C) (Collette and Klein-MacPhee 2002). They prefer complex benthic habitats with large stones and rocks (Pavlov and 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 and Ross 1992). Most individuals mature by age 5-6 when they reach approximately 18.5 in (47 cm) total length (Nelson and Ross 1992, Templeman 1986). However, size at first maturity varies regionally; northern fish mature at smaller sizes than faster growing southern fish. There is conflicting information about the spawning season for Atlantic wolffish in the Gulf of Maine-Georges Bank region. Peak spawning period is believed to occur from September to October (Collette and Klein-MacPhee 2002), though laboratory studies have shown that wolffish can spawn most of the year (Pavlov and Moksness 1994). Eggs are laid in masses and that the males are thought to brood for several months. Incubation time is dependent on water temperature and may be 3 to 9 months. Larvae and early juveniles are pelagic between 20 and 40 mm TL, with settlement beginning by 50 mm TL (Falk-Petersen and Hansen 1990).

Population Status: NEFSC spring and fall bottom trawl survey indices show abundance and biomass of Atlantic wolffish generally has declined over the last two to three decades. However, 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, but overfishing is not occurring.

4.4.9 Atlantic Halibut

Life History: Atlantic halibut, *Hippoglossus hippoglossus*, is the largest species of flatfish found in the northwest Atlantic Ocean. This long-lived, late-maturing flatfish is distributed from Labrador to southern New England (Collette and Klein-MacPhee 2002). They prefer sand, gravel, or clay substrates at depths up to 1000 m (Scott and Scott 1988; Miller et al. 1991). Along the coastal Gulf of Maine, halibut move to deeper water in winter and shallower water in summer (Collette and 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 and Gulliksen 1988). Spawning is believed to occur in waters of the upper continental slope at depths of 200 m or greater (Scott and Scott 1988). Halibut eggs are buoyant but drift suspended in the water at depths of 54-90 m (Tåning 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: 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. Based on the results of a 2012 assessment update, Atlantic halibut is overfished and overfishing is not occurring (NEFSC 2012).

4.4.10 Southern New England-Mid-Atlantic Winter Flounder

Life History: The winter flounder, blackback, or lemon sole, *Psuedopleuronectes americanus*, is a demersal flatfish distributed in the western North Atlantic from Labrador to Georgia. Winter flounder prefer mud, sand, clay, and even gravel habitat, but offshore populations may occur on hard bottom (Collette and Klein-MacPhee 2002). They migrate inshore in the fall and early winter and spawn in late winter and early spring (Pereira et al. 1999), with peak spawning occurring in Massachusetts Bay and south of Cape Cod during February and March, continuing into May. After spawning, adults typically leave inshore areas when water temperatures exceed 59 °F (15°C) although some remain inshore year-round. The eggs of winter flounder are demersal, adhesive, and stick together in clusters. Larvae are initially planktonic but become increasingly bottom-oriented as metamorphosis approaches. Metamorphosis is when the left eye migrates to the right side of the body and the larvae become "flounder-like". It begins around 5 to 6 weeks after hatching, and finishes by the time the larvae are 0.3 to 0.4 in (8 to 9 mm) in length at about 8 weeks after hatching. Newly metamorphosed young-of-the-year winter flounder reside in shallow water where individuals may grow to about 4 in (100 mm) within the first year (Collette and Klein-MacPhee 2002). In U.S. waters, the resource is assessed and managed as three stocks: Gulf of Maine, Southern New England/Mid-Atlantic (SNE/MA), and Georges Bank.

Population Status: A benchmark assessment completed for SNE/MA winter flounder in 2011 concluded that this stock was overfished but overfishing was not occurring in 2010 (NEFSC 2011).

Note: This species may be allocated for the 2013 fishing year, based on the implementation of FW 48 and 50.

4.4.11 Interaction between Gear and Non-allocated Target Species and Bycatch

The majority of the proposed sectors have minimal operational history; therefore, the analysis of interactions between gear and non-allocated target species and bycatch is based in part on catch information for the Northeast Multispecies FMP common pool fishery from FY 1996 to FY 2006. It is also based on sector data from FY 2009 to FY 2011, as presented in Section 4.1.

The Final Supplemental Environmental Impact Statement to Amendment 2 (NEFMC and MAFMC 2003) evaluated the potential adverse effects of gears used in the directed monkfish fishery. It evaluated impacts for monkfish and other federally-managed species, as well as the effects of fishing activities regulated under other federal FMPs on monkfish. Bottom trawls and bottom gillnets and the two gears used in the monkfish fishery. Amendment 2 to the Monkfish FMP (NEFMC and MAFMC 2003) describes these gears in detail. Sectors would use these same gears in FY 2012.

Fishermen in the Northeast Region harvest skates in two very different ways. , Fishermen harvest whole skates for lobster bait. They also harvest skate wings for food. Vessels tend to catch skates when targeting other species like groundfish, monkfish, and scallops. The vessels will land skate if the price is high enough. The recent NEFMC Amendment to the Skate FMP and accompanying Final Supplemental Environmental Impact Statement (NEFMC 2009b) contain detailed information about skate fisheries.

Dogfish have the potential to interact with all gear types used by the sectors. Table 4.3.11-1 shows that otter trawl gear caught the majority of non-allocated target species and bycatch between FY 1996 to FY 2006.

Table 4.4.11-1
Landings (mt) for Non-allocated Target Species and Bycatch by Gear Type[a]

	Gear Type									
	Trawl		Gillnet		Dredge		Other Gear		Total[b]	
Species	Landings	Discard	Landings	Discard	Landings	Discard	Landings	Discard	Landings	Discard
Monkfish	NA	16,516	NA	6,526	NA	16,136	NA	4 [c]	228,000	39,182
Skates	117,381	315,308	29,711	26,601	--	146,725	4,413	2646 [d]	151,505	491,280
Dogfish	24,368	61,914	72,712	39,852	--	--	946	--	98,026	101,766

Notes:

NA = landings or discard data not available for individual fishery gear type for this species.

-- = None reported

[a] monkfish 1996-2006, skates 1996-2006, dogfish 1996-2005

[b.] Total landings or discards may differ slightly from the sum of the individual fishery entries due to differences in rounding.

[c] Shrimp Trawl

[d] Line and shrimp trawl

Source: Northeast Data Poor Stocks Working Group 2007a; Northeast Data Poor Stocks Working Group 2007b ; Sosebee et al. 2008; NEFSC 2006a.

4.5 PROTECTED RESOURCES

Numerous protected species inhabit the environment within the Northeast Multispecies FMP management unit. Therefore, many protected species potentially occur in the operations area of the fishery. 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). As listed in Table 4.5.1-1, 17 marine mammal, sea turtle, and fish species are classified as endangered or threatened under the ESA, and three others are candidate species under the ESA. The remaining species in Table 4.5.1-1 are protected by the MMPA and are known to interact with the Northeast Multispecies fishery. Non ESA-listed species protected by the MMPA that utilize this environment and have no documented interaction with the Northeast Multispecies fishery will not be discussed in this document.

4.5.1 Species Present in the Area

Table 4.5.1-1 lists the species, protected either by the ESA, the MMPA, or both, that may be found in the environment utilized sectors. Table 4.5.1-1 also includes three candidate fish species, as identified under the ESA.

A status review for Atlantic sturgeon was completed in 2007 which indicated that five distinct population segments (DPS) of Atlantic sturgeon exist in the United States (ASSRT 2007). On October 6, 2010, NMFS proposed listing these five DPSs of Atlantic sturgeon along the U.S. East Coast as either threatened or endangered species (75 FR 61872 and 75 FR 61904). A final listing was published on February 6th, 2012 (77 FR 5880 and 75 FR 5914). The GOM DPS of Atlantic sturgeon has been listed as threatened, and the New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs of Atlantic sturgeon have been listed as endangered. Atlantic sturgeon from any of the five DPSs could occur in areas where the multispecies fishery operates Atlantic sturgeon are known to be captured in sink gillnet, drift gillnet, and otter trawl gear (Stein *et al*. 2004a, ASMFC TC 2007). Of these gear types, sink gillnet gear poses the greatest known risk of mortality for bycaught sturgeon (ASMFC TC 2007). Sturgeon deaths were rarely reported in the otter trawl observer dataset , as well as sink gillnet and drift gillnet gear (ASMFC TC 2007).

Candidate species are those petitioned species that NMFS is actively considering for listing as endangered or threatened under the ESA. Candidate species also include those species for which NMFS has initiated an ESA status review through an announcement in the *Federal Register*.

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

Table 4.5.1-1
Species Protected Under the Endangered Species Act and/or Marine Mammal Protection Act that May Occur in the Operations Area for the FY 2013 Sectors[a]

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

Notes:

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

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

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

4.5.2 Species Potentially Affected

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

4.5.2.1 Sea Turtles

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

On March 16, 2010, NMFS and USFWS published a proposed rule (75 FR 12598) to divide the worldwide population of loggerhead sea turtles into nine DPSs, as described in the 2009 Status Review. Two of the DPSs were proposed to be listed as threatened and seven of the DPSs, including the Northwest Atlantic Ocean DPS, were proposed to be listed as endangered. NMFS and the USFWS accepted comments on the proposed rule through September 13, 2010 (75 FR 30769, June 2, 2010). On March 22, 2011 (76 FR 15932), NMFS and USFWS extended the date by which a final determination on the listing action will be made to no later than September 16, 2011. This action was taken to address the interpretation of the existing data on status and trends and its relevance to the assessment of risk of extinction for the Northwest Atlantic Ocean DPS, as well as the magnitude and immediacy of the fisheries bycatch threat and measures to reduce this threat. New information or analyses to help clarify these issues were requested by April 11, 2011.

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

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

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

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

4.5.2.2 Large Cetaceans

The most recent Marine Mammal Stock Assessment Report (SAR) (Waring et al. 2012), covering the time period between 2005 and 2009, reviewed the current population trend for each of these cetacean species within U.S. Economic Exclusion Zone (EEZ) waters. The SAR also estimated annual human-caused mortality and serious injury. Finally, it described the commercial fisheries that interact with each stock in the U.S. Atlantic. The following paragraphs summarize information from the SAR.

The western North Atlantic baleen whale species (North Atlantic right, humpback, fin, sei, and minke whales) follow a general annual pattern of migration. They migrate from high latitude summer foraging grounds, including the Gulf of Maine and Georges Bank, to low latitude winter calving grounds (Perry et al. 1999, Kenney 2002). However, this is a simplification of species movements as the complete winter distribution of most species is unclear (Perry et al. 1999, Waring et al. 2012). Studies of some of the large baleen whales (right, humpback, and fin) have demonstrated the presence of each species in higher latitude waters even in the winter (Swingle et al. 1993, Wiley et al. 1995, Perry et al. 1999, Brown et al. 2002). Blue whales are most often sighted along the east coast of Canada, particularly in the Gulf of St. Lawrence. They occur only infrequently within the U.S. EEZ (Waring et al. 2002).

North Atlantic right whales are federally listed as endangered under the ESA and a revised recovery plan was published in June 2005. Available information suggests that the North Atlantic right whale population increased at a rate of 2.4 percent per year between 1990 and 2007. The total number of North Atlantic right whales is estimated to be at least 396 animals in 2006 (Waring et al. 2012). The minimum rate of annual human-caused mortality and serious injury to right whales averaged 2.4 mortality or serious injury incidents per year during 2005 to 2009 (Waring et al. 2012). Of these, fishery interactions resulted in an average of 0.8 mortality or serious injury incidents per year, all in U.S. waters. The potential biological removal (PBR) level for this stock is 0.8 animals per year (Waring et al. 2012).

Humpback whales are also listed as endangered under the ESA, and a recovery plan was published for this species in 1991. The North Atlantic population of humpback whales is conservatively estimated to be 7,698 (Waring et al. 2012). The best estimate for the GOM stock of humpback whale population is 847 whales and cCurrent data suggest that the Gulf of Maine humpback whale stock is steadily increasing in size (Waring et al. 2012). The minimum rate of annual human-caused mortality and serious injury to humpback whales averaged 5.2 mortality or serious injury incidents per year during 2005 to 2009 (Waring et al. 2012). Of these, fishery interactions resulted in an average of 3.8 mortality or serious injury incidents per year (3.4 from U.S. waters and 0.4 from Canadian waters). The PBR for this stock is 1.1 animals per year (Waring et al. 2012).

Fin, sei, and sperm whales are all federally listed as endangered under the ESA, with recovery plans currently in place. Based on data available for selected areas and time periods, the minimum population estimates for these western North Atlantic whale stocks are 3,269 fin whales, 208 sei whales (Nova Scotia stock) (Waring et al. 2012), and 3,539 sperm whales (Waring et al. 2007). Insufficient information exists to determine population trends for these large whale species.

The Potential Biological Removal (PBR) level is the maximum number of animals, not including natural mortalities, which may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population

The minimum rate of annual human-caused mortality and serious injury to fin whales averaged 2.6 mortality or serious injury incidents per year during 2005 to 2009 (Waring et al. 2012). Of these, fishery interactions resulted in an average of 0.8 mortality or serious injury incidents per year (0.6 from U.S. waters and 0.2 from Canadian waters). The PBR for this stock is 6.5 animals per year (Waring et al. 2012). For sei whales, the minimum rate of annual human-cause mortality and serious injury averaged 1.2 per year, of which 0.6 were a result of fishery interactions. PBR for the Nova Scotia sei whale stock is 0.4 (Waring et al. 2012). For both fin and sei whales, these estimates are likely biased low due to the low detection rate for these species. The most recent SAR for the North Atlantic sperm whale stock is from 2007 (covering the years 2001-2005) and during that time period, there were no recorded mortality or serious injury incidents due to entanglements (Waring et al. 2007). PBR for this stock is 7.1 animals per year.

Minke whales are not ESA-listed but are protected under the MMPA, with a minimum population estimate of 6,909 animals for the Canadian east coast stock; however, a population trend analysis has not been conducted for this stock (Waring et al. 2012). The minimum rate of annual human-caused mortality and serious injury averaged 5.9 per year during 2005 to 2009, and of these, 3.5 animals per year were recorded through observed fisheries and 0.8 per year were attributed to U.S. fisheries using strandings and entanglement data (Waring et al. 2012). PBR for this stock is 69 animals per year.

More details on fisheries interactions with these species, as well as management actions in place to reduce entanglement risk, can be found in Section 4.5.4.

4.5.2.3 Small Cetaceans

There is fishing related mortality of numerous small cetacean species (dolphins, pilot whales, and harbor porpoises) associated with Northeast Multispecies fishing gear. Seasonal abundance and distribution of each species off the coast of the Northeast U.S. varies with respect to life history characteristics. Some species such as white-sided dolphins and harbor porpoises primarily occupy continental shelf waters. Other species such as the Risso's dolphin occur primarily in continental shelf edge and slope waters. Still other species like the common dolphin and the spotted dolphin occupy all three habitats. Waring et al. (2012) summarizes information on the distribution and geographic range of western North Atlantic stocks of each species.

The most commonly observed small cetaceans recorded as bycatch in multispecies fishing gear (e.g., gillnets and trawls) are harbor porpoises, white-sided dolphins, common dolphins, and pilot whales. These species are described in a bit more detail here. Harbor porpoises are found seasonally within New England and Mid-Atlantic waters. In the Mid-Atlantic, porpoises are present in the winter/spring (typically January through April) and in southern New England waters from December through May. In the Gulf of Maine, porpoises occur largely from the fall through the spring (September through May) and in the summer are found in northern Maine and through the Bay of Fundy and Nova Scotia area. White-sided dolphin distribution shifts seasonally, with a large presence from Georges Bank through the Gulf of Maine from June through September, with intermediate presence from Georges Bank through the lower Gulf of Maine from October through December. Low numbers are present from Georges Bank to Jeffrey's Ledge from January through May (Waring et al. 2012). Common dolphins are widely distributed over the continental shelf from Maine through Cape Hatteras, North Carolina. From mid-January to May they are dispersed from North Carolina through Georges Bank, and then move onto Georges Bank and the Scotia shelf from the summer to fall. They are occasionally found in the Gulf of Maine (Waring et al. 2012). Pilot whales are generally distributed along the continental shelf edge off the northeastern U.S. coast in the winter and early spring. In late spring, the move onto Georges Bank and into the Gulf of Maine and remain until late fall. They do occur along the Mid-Atlantic shelf break between Cape Hatteras, North Carolina and New Jersey (Waring et al. 2012). Since pilot whales are difficult to differentiate at sea, they are generally considered *Globicephala* sp. when they are recorded at sea (Waring et al. 2012).

4.5.2.4 Pinnipeds

Harbor seals have the most extensive distribution of the four species of seal expected to occur in the area. Harbor seals sighting have occurred far south as 30° N (Katona et al. 1993, Waring et al. 2012). Their approximate year-round range extends from Nova Scotia, through the Bay of Fundy, and south through Maine to northern Massachusetts (Waring et al. 2012). Their more seasonal range (September through May) extends from northern Massachusetts south through southern New Jersey, and stranding records indicate occasional presence of harbor seals from southern New Jersey through northern North Carolina (Waring et al. 2012). Gray seals are the second most common seal species in U.S. EEZ waters. They occur from Nova Scotia through the Bay of Fundy and into waters off of New England (Katona et al. 1993; Waring et al. 2011) year-round from Maine through southern Massachusetts (Waring et al. 2012). A more seasonal distribution of gray seals occurs from southern Massachusetts through southern New Jersey from September through May. Similar to harbor seals, occasional presence from southern New Jersey through northern North Carolina indicate occasional presence of gray seals in this region (Waring et al. 2012). Pupping for both species occurs in both U.S. and Canadian waters of the western North Atlantic. The majority of harbor seal pupping is thought to occur in U.S. waters. While there are at least three gray seal pupping colonies in U.S., the majority of gray seal pupping likely occurs in Canadian waters. Observations of harp and hooded seals are less common in U.S. EEZ waters. Both species form aggregations for pupping and breeding off eastern Canada in the late winter/early spring. They then travel to more northern latitudes for molting and summer feeding (Waring et al. 2006). Both species have a seasonal presence in U.S. waters from Maine to New Jersey, based on sightings, stranding, and fishery bycatch information (Waring et al. 2012).

4.5.2.5 Atlantic Sturgeon

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

Since the ESA listing of Atlantic sturgeon, the NEFSC has completed new population estimates using data from the Northeast Area Monitoring and Assessment (NEAMAP) survey (Kocik et al. 2013). Atlantic sturgeon are frequently sampled during the NEAMAP survey. NEAMAP has been conducting trawl surveys from Cape Cod, Massachusetts to Cape Hatteras, North Carolina in nearshore waters at depths to 18.3 meters (60 feet) during the fall since 2007 and depths up to 36.6 meters (120 feet) during the spring since 2008 using a spatially stratified random design with a total of 35 strata and 150 stations per survey. The information from this survey can be directly used to calculate minimum swept area population estimates during the fall, which range from 6,980 to 42,160 with coefficients of variation between 0.02 and 0.57 and during the spring, which range from 25,540 to 52,990 with coefficients of variation between 0.27 and 0.65. These are considered minimum estimates because the calculation makes the unlikely assumption that the gear will capture 100% of the sturgeon in the water column along the tow path. Efficiencies less than 100% will result in estimates greater than the minimum. The true efficiency depends on many things including the availability of the species to the survey and the behavior of the species with respect to the gear. True efficiencies much less than 100% are common for most species. The NEFSC's analysis also calculated estimates based on an assumption of 50% efficiency, which reasonably accounts for the robust, yet not complete sampling of the Atlantic sturgeon, oceanic temporal and spatial ranges, and the documented high rates of encounter with NEAMAP survey gear and Atlantic sturgeon. For this analysis, NMFS has determined that the best available scientific information for the status of Atlantic sturgeon at this time are the population estimates derived from NEAMAP swept area biomass (Kocik et al. 2013) because the estimates are derived directly from empirical data with few assumptions. NMFS has determined that using the median value of the 50% efficiency as the best estimate of the Atlantic sturgeon ocean population is most appropriate at this time. This results in a total population size estimate of 67,776 fish, which is considerably higher than the estimates that were available at the time of listing. This estimate is the best available estimate of Atlantic sturgeon abundance at the time of this analysis. The ASMFC has begun work on a benchmark assessment for Atlantic sturgeon to be completed in 2014, which would be expected to provide an updated population estimate and stock status. The ASMFC is currently collecting public submissions of data for use in the assessment: http://www.asmfc.org/press_releases/2013/pr20AtlSturgeonStockAssmtPrep.pdf.

4.5.3 Species and Habitats Not Likely to be Affected

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

(discussed in Section 4.5.2.2) critical habitat. The following discussion provides the rationale for these determinations.

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

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

North Atlantic right whales occur in coastal and shelf waters in the western North Atlantic (NMFS 2005). Section 4.5.2.2 discusses potential fishery entanglement and mortality interactions with North Atlantic right whale individuals. The western North Atlantic population in the U.S. primarily ranges from winter calving and nursery areas in coastal waters off the southeastern U.S. to summer feeding grounds in New England waters (NMFS 2005). North Atlantic Right Whales use five well-known habitats annually, including multiple in northern waters. These northern areas include the Great South Channel (east of Cape Cod); Cape Cod and Massachusetts Bays; the Bay of Fundy; and Browns and Baccaro Banks, south of Nova Scotia. NMFS designated the Great South Channel and Cape Cod and Massachusetts Bays as Northern Atlantic right whale critical habitat in June 1994 (59 FR 28793). NMFS has designated additional critical habitat in the southeastern U.S. Multispecies gear operates in the ocean at or near the bottom rather than near the surface. It is not known whether the bottom-trawl, or any other type of fishing gear, has an impact on the habitat of the Northern right whale (59 FR 28793). As discussed in the FY 2010 and FY 2011 sector EAs and further in Section 5.1, sectors would result in a negligible effect on physical habitat. Therefore, FY 2013 sector operations would not result in a significant impact on Northern right whale critical habitat. Further, mesh sizes used in the multispecies fishery do not significantly impact the Northern right whale's planktonic food supply (59 FR 28793). Therefore, Northern right whale food sources in areas designated as critical habitat would not be adversely affected by sectors. For these reasons, Northern right whale critical habitat will not be considered further in this EA.

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

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

Unlike blue whales, sperm whales do regularly occur in waters of the U.S. EEZ. However, the distribution of the sperm whales in the U.S. EEZ occurs on the continental shelf edge, over the continental slope, and into mid-ocean regions (Waring et al. 2007). Sperm whale distribution is typically concentrated east-northeast of Cape Hatteras in winter and shifts northward in spring when whales are found throughout the Mid-Atlantic Bight (Waring et al. 2006). Distribution extends further northward to areas north of Georges Bank and the Northeast Channel region in summer and then south of New England in fall, back to the Mid-Atlantic Bight (Waring et al. 1999). In contrast, the sectors would operate in continental shelf waters. The average depth over which sperm whale sightings occurred during the Cetacean and Turtle Assessment Program surveys was 5,879 ft (1,792 m) (Cetacean and Turtle Assessment Program 1982). Female sperm whales and young males almost always inhabit open ocean, deep water habitat with bottom depths greater than 3,280 ft (1,000 m) and at latitudes less than 40° N (Whitehead 2002). Sperm whales feed on large squid and fish that inhabit the deeper ocean regions (Perrin et al. 2002). There were no observed fishery-related mortalities or serious injuries to sperm whales between 2001 and 2005 (Waring et al. 2007). Sperm whales are unlikely to occur in water depths where the sectors would operate, sector operations would not affect the availability of sperm whale prey or areas where calving and nursing of young occurs. Therefore, the Proposed Action would not be likely to adversely affect sperm whales.

Although marine turtles and large whales could be potentially affected through interactions with fishing gear, NMFS has determined that the continued authorization of the multispecies fishery, and therefore the FY 2011 sectors, would not have any adverse effects on the availability of prey for these species. Sea turtles feed on a variety of plants and animals, depending on the species. However, none of the turtle species are known to feed upon groundfish. Right whales and sei whales feed on copepods (Horwood 2002, Kenney 2002). The multispecies fishery will not affect the availability of copepods for foraging right and sei whales because copepods are very small organisms that will pass through multispecies fishing gear rather than being captured in it. Humpback whales and fin whales also feed on krill as well as small schooling fish such as sand lance, herring and mackerel (Aguilar 2002, Clapham 2002). Multispecies fishing gear operates on or very near the bottom. Fish species caught in multispecies gear are species that live in benthic habitat (on or very near the bottom) such as flounders. As a result, this gear does not typically catch schooling fish such as herring and mackerel that occur within the water column. Therefore, the continued authorization of the multispecies fishery or the approval of the FY 2013 sector operations plans will not affect the availability of prey for foraging humpback or fin whales.

4.5.4 Interactions Between Gear and Protected Resources

Marine Mammals

NMFS categorizes commercial fisheries based on a two-tiered, stock-specific fishery classification system that addresses both the total impact of all fisheries on each marine mammal stock as well as the impact of individual fisheries on each marine mammal stock. NMFS bases the system on the numbers of animals per year that incur incidental mortality or serious injury due to commercial fishing operations relative to a marine mammal stock's PBR level. Tier 1 takes into account the cumulative mortality and serious injury to marine mammals caused by commercial fisheries. Tier 2 considers marine mammal mortality and serious injury caused by the individual fisheries. This EA uses Tier 2 classifications to indicate how each

type of gear proposed for use in the Proposed Action may affect marine mammals (NMFS 2009b). Table 4.5.4-1 identifies the classifications used in the final List of Fisheries for FY 2012 (76 FR 73912; November 29, 2011; NMFS 2011), which are broken down into Tier 2 Categories I, II, and III.

Table 4.5.4-1 Descriptions of the Tier 2 Fishery Classification Categories (50 CFR 229.2)	
Category	**Category Description**
Category I	A commercial fishery that has frequent incidental mortality and serious injury of marine mammals. This classification indicates that a commercial fishery is, by itself, responsible for the annual removal of 50 percent or more of any stock's PBR level.
Category II	A commercial fishery that has occasional incidental mortality and serious injury of marine mammals. This classification indicates that a commercial fishery is one that, collectively with other fisheries, is responsible for the annual removal of more than 10 percent of any marine mammal stock's PBR level and that is by itself responsible for the annual removal of between 1 percent and 50 percent, exclusive of any stock's PBR.
Category III	A commercial fishery that has a remote likelihood of, or no known incidental mortality and serious injury of marine mammals. This classification indicates that a commercial fishery is one that collectively with other fisheries is responsible for the annual removal of: a. Less than 50 percent of any marine mammal stock's PBR level, or b. More than 1 percent of any marine mammal stock's PBR level, yet that fishery by itself is responsible for the annual removal of 1 percent or less of that stock's PBR level. In the absence of reliable information indicating the frequency of incidental mortality and serious injury of marine mammals by a commercial fishery, the Assistant Administrator would determine whether the incidental serious injury or mortality is "remote" by evaluating other factors such as fishing techniques, gear used, methods used to deter marine mammals, target species, seasons and areas fished, qualitative data from logbooks or fisher reports, stranding data, and the species and distribution of marine mammals in the area or at the discretion of the Assistant Administrator.

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

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

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

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

Table 4.5.4-2 lists the marine mammals known to have had interactions with gear used by the Northeast Multispecies fishery. This gear includes sink gillnets, traps/pots, bottom trawls, and bottom longlines within the Northeast Multispecies region, as excerpted from the List of Fisheries for FY 2012 ([76 FR 73912; November 29, 2011], also see Waring et al. 2012). Sink gillnets have the greatest potential for interaction with protected resources, followed by bottom trawls. There are no observed reports of interactions between bottom longline gear used in the Multispecies fishery and marine mammals in FY 2009 through FY 2011. However, interactions between the pelagic longline fishery and both pilot whales and Risso's dolphins led to the development of the Pelagic Longline Take Reduction Plan.

Table 4.5.4-2
Marine Mammal Species and Stocks Incidentally Killed or Injured Based on Northeast Multispecies Fishing Areas and Gear Types (based on 2012 List of Fisheries)

Fishery		Estimated Number of Vessels/Persons	Marine Mammal Species and Stocks Incidentally Killed or Injured
Category	Type		
Category I	Mid-Atlantic gillnet	6,402	Bottlenose dolphin, Northern Migratory coastal [a] Bottlenose dolphin, Southern Migratory coastal [a] Bottlenose dolphin, Northern NC estuarine system [a] Bottlenose dolphin, Southern NC estuarine system [a] Bottlenose dolphin, WNA offshore Common dolphin, WNA Gray seal, WNA Harbor porpoise, GOM/Bay of Fundy Harbor seal, WNA Harp seal, WNA Humpback whale, Gulf of Maine Long-finned pilot whale, WNA Minke whale, Canadian east coast Short-finned pilot whale, WNA White-sided dolphin, WNA
	Northeast sink gillnet	3,828	Bottlenose dolphin, WNA, offshore Common dolphin, WNA Fin whale, WNA Gray seal, WNA Harbor porpoise, GOM/Bay of Fundy Harbor seal, WNA Harp seal, WNA Hooded seal, WNA Humpback whale, GOM Minke whale, Canadian east coast North Atlantic right whale, WNA Risso's dolphin, WNA White-sided dolphin, WNA

Table 4.5.4-2 (continued) Marine Mammal Species and Stocks Incidentally Killed or Injured Based on Northeast Multispecies Fishing Areas and Gear Types (based on 2012 List of Fisheries)			
Fishery		**Estimated Number of Vessels/Persons**	**Marine Mammal Species and Stocks Incidentally Killed or Injured**
Category	**Type**		
Category II	Mid-Atlantic bottom trawl	1,388	Bottlenose dolphin, WNA offshore Common dolphin, WNA [a] Long-finned pilot whale, WNA [a] Risso's dolphin, WNA Short-finned pilot whale, WNA [a] White-sided dolphin, WNA
	Northeast bottom trawl	2,584	Common dolphin, WNA Harbor porpoise, GOM/ Bay of Fundy Harbor seal, WNA Harp seal, WNA Long-finned pilot whale, WNA Short-finned pilot whale, WNA White-sided dolphin, WNA [a]
	Atlantic mixed species trap/pot [c]	3,526	Fin whale, WNA Humpback whale, GOM
Category III	Northeast/Mid-Atlantic bottom longline/hook-and-line	>1,281	None documented in recent years

Notes:

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

Table 4.5.4-3 shows trends in marine mammal and ESA listed species takes from FY 2009 to FY 2011 (fishing years as opposed to calendar years) as recorded in the ASM and observer program data. This data comes from trips that were potentially using sector ACE.

Table 4.5.4-3
Marine Mammal and ESA listed Species Observed Taken By Gear as Recorded in ASM and Observer Program
Universe: Trips Potentially Using Sector ACE in FY 2009-FY2011 Data as of: October 18, 2012

Gear Name	Species Category	Common Name	Scientific Name	2009 Takes	2010 Takes	2011 Takes
GILL NET, DRIFT-SINK, FISH	pinniped	SEAL, HARBOR	PHOCA VITULINA CONCOLOR	2	0	0
GILL NET, FIXED OR ANCHORED,SINK, OTHER	cetacean	PORPOISE, HARBOR	PHOCOENA PHOCOENA	18	31	10
GILL NET, FIXED OR ANCHORED,SINK, OTHER	cetacean	PORPOISE/DOLPHIN, NK	PHOCOENIDAE/DELPHINIDAE	0	0	2
GILL NET, FIXED OR ANCHORED,SINK, OTHER	cetacean	DOLPHIN, NK (MAMMAL)	DELPHINIDAE	0	0	1
GILL NET, FIXED OR ANCHORED,SINK, OTHER	cetacean	DOLPHIN, WHITESIDED	LAGENORHYNCHUS ACUTUS	1	1	0
GILL NET, FIXED OR ANCHORED,SINK, OTHER	cetacean	DOLPHIN,COMMON (OLD SADDLEBACK)	DELPHINUS DELPHIS (COMMON)	1	1	2
GILL NET, FIXED OR ANCHORED,SINK, OTHER	cetacean	MARINE MAMMAL, NK	CETACEA/PINNIPEDIA	0	1	0
GILL NET, FIXED OR ANCHORED,SINK, OTHER	cetacean	WHALE, PILOT, NK	GLOBICEPHALA SP	0	1	0
GILL NET, FIXED OR ANCHORED,SINK, OTHER	pinniped	SEAL, HARBOR	PHOCA VITULINA CONCOLOR	27	4	30
GILL NET, FIXED OR ANCHORED,SINK, OTHER	pinniped	SEAL, NK	PHOCIDAE	9	9	0
GILL NET, FIXED OR ANCHORED,SINK, OTHER	pinniped	SEAL, GRAY	HALICHOERUS GRYPUS	52	41	53
GILL NET, FIXED OR ANCHORED,SINK, OTHER	pinniped	SEAL, HARP	PHOCA GROENLANDICA	2	1	0
GILL NET, FIXED OR ANCHORED,SINK, OTHER	turtle	TURTLE, NK HARD-SHELL	CHELONIIDAE	1	0	1
TRAWL,OTTER,BOTTOM,FISH	cetacean	DOLPHIN, WHITESIDED	LAGENORHYNCHUS ACUTUS	9	35	9
TRAWL,OTTER,BOTTOM,FISH	cetacean	DOLPHIN, NK (MAMMAL)	DELPHINIDAE	0	0	5
TRAWL,OTTER,BOTTOM,FISH	cetacean	PORPOISE, HARBOR	PHOCOENA PHOCOENA	0	1	4
TRAWL,OTTER,BOTTOM,FISH	cetacean	WHALE, PILOT, NK	GLOBICEPHALA SP	3	6	2
TRAWL,OTTER,BOTTOM,FISH	cetacean	DOLPHIN,COMMON (OLD SADDLEBACK)	DELPHINUS DELPHIS (COMMON)	3	6	4
TRAWL,OTTER,BOTTOM,FISH	cetacean	DOLPHIN, RISSOS	GRAMPUS GRISEUS	1	0	0
TRAWL,OTTER,BOTTOM,FISH	cetacean	WHALE, NK	CETACEA, WHALE	0	0	1
TRAWL,OTTER,BOTTOM,FISH	pinniped	SEAL, HARBOR	PHOCA VITULINA CONCOLOR	0	3	0
TRAWL,OTTER,BOTTOM,FISH	pinniped	SEAL, GRAY	HALICHOERUS GRYPUS	5	2	5
TRAWL,OTTER,BOTTOM,FISH	turtle	TURTLE, LOGGERHEAD	CARETTA CARETTA	1	0	2
TRAWL,OTTER,BOTTOM,FISH	turtle	TURTLE, LEATHERBACK	DERMOCHELYS CORIACEA	0	1	0
TRAWL,OTTER,BOTTOM,HADDOCK SEPARATOR	cetacean	DOLPHIN,COMMON (OLD SADDLEBACK)	DELPHINUS DELPHIS (COMMON)	0	2	6
TRAWL,OTTER,BOTTOM,HADDOCK SEPARATOR	cetacean	WHALE, PILOT, NK	GLOBICEPHALA SP	1	1	1
TRAWL,OTTER,BOTTOM,HADDOCK SEPARATOR	pinniped	SEAL, GRAY	HALICHOERUS GRYPUS	0	0	1
TRAWL,OTTER,BOTTOM,RUHLE	cetacean	WHALE, PILOT, NK	GLOBICEPHALA SP	2	0	0
TRAWL,OTTER,BOTTOM,RUHLE	cetacean	DOLPHIN, WHITESIDED	LAGENORHYNCHUS ACUTUS	0	1	0
TRAWL,OTTER,BOTTOM,RUHLE	cetacean	DOLPHIN,COMMON (OLD SADDLEBACK)	DELPHINUS DELPHIS (COMMON)	1	0	0
TRAWL,OTTER,BOTTOM,RUHLE	pinniped	SEAL, GRAY	HALICHOERUS GRYPUS	0	0	1

Marine mammals are taken in gillnets, trawls, and trap/pot gear used in the Northeast Multispecies area. Documented marine mammal interactions in Northeast sink gillnet and Mid-Atlantic gillnet fisheries include harbor porpoise, white-sided dolphin, harbor seal, gray seal, harp seal, hooded seal, pilot whale, bottlenose dolphin (various stocks), Risso's dolphin, and common dolphin. Tables 4.5.4-4 and 4.5.4-5 summarize the estimated mean annual mortality of small cetaceans and seals that are taken in the Northeast sink gillnet and Mid-Atlantic gillnet fisheries according to the most recent SAR for each particular species.

Documented marine mammal interactions with Northeast and Mid-Atlantic bottom trawl fisheries include minke whale, harbor porpoise, white-sided dolphin, harbor seal, gray seal, harp seal, pilot whale, and common dolphin. Tables 4.5.4-6 and 4.5.4-7 provide the estimated mean annual mortality of small cetaceans and seals that are taken in the Northeast and Mid-Atlantic bottom trawl fisheries, based on the most recent SAR for each particular species. The data in these tables are based on takes observed by fishery observers as part of the Northeast Fisheries Observer Program (NEFOP).

Table 4.5.4-4
Estimated Marine Mammal Mortalities in the Northeast Sink Gillnet Fishery

Species	**Years Observed**	**Mean Annual Mortality (CV)**	**Total PBR**
Harbor porpoise	05-09	559 (0.16)	701
Atlantic white-sided dolphin	05-09	36 (0.34)	190
Common dolphin (short-beaked)	05-09	26 (0.39)	1,000
Risso's dolphin	05-09	3 (0.93)	124
Western North Atlantic Offshore bottlenose dolphin	02-06	Unknown[+]	566
Harbor seal	05-09	332 (0.14)	Undetermined
Gray seal	05-09	678 (0.14)	Undetermined
Harp seal	05-09	174 (0.18)	Unknown
Hooded seal	01-05	25 (0.82)	Unknown

Source: Waring et al. (2009, 2012)
[+]While there have been documented interactions between the Western North Atlantic Offshore bottlenose dolphin stock and the Northeast sink gillnet fishery during the five year time period, estimates of bycatch mortality in the fishery have not been generated.

Table 4.5.4-5 Estimated Marine Mammal Mortalities in the Mid-Atlantic Gillnet Fishery			
Species	**Years Observed**	**Mean Annual Mortality (CV)**	**Total PBR**
Harbor porpoise	05-09	318 (0.26)	701
Common dolphin (short-beaked)	05-09	2.2 (1.03)	1,000
Risso's dolphin	05-09	7 (0.73)	124
Bottlenose dolphin	06-08		
Western North Atlantic Northern Migratory Coastal stock		5.27 (0.19) min; 6.02 (0.19) max	71
Western North Atlantic Southern Migratory Coastal stock	06-08	5.71 (0/31 min; 41.91 (0.14) max	96
Northern North Carolina Estuarine System stock	06-08	2.39 (0.25) min; 18.99 (0.11) max 0.61 (0.30) min; 0.92 (0.21) max	Undetermined
Southern North Carolina Estuarine System stock	06-08	Unknown+	16
Western North Atlantic Offshore stock	02-06		566
Harbor seal	05-09	45 (0.39)	Undetermined
Harp seal	05-09	57 (0.5)	Unknown

Source: Waring et al. (2009, 2012)

+While there have been documented interactions between the Western North Atlantic Offshore bottlenose dolphin stock and the Mid-Atlantic gillnet fishery during the five year time period, estimates of bycatch mortality in the fishery have not been generated.

Table 4.5.4-6: Estimated Marine Mammal Mortalities in the Northeast Bottom Trawl Fishery

Species	**Years Observed**	**Mean Annual Mortality (CV)**	**Total PBR**
Minke whale	05-09	3.5 (0.34)	69
Harbor porpoise	05-09	6 (0.22)	701
Atlantic white-sided dolphin	05-09	160 (0.14)	190
Common dolphin (short-beaked)	05-09	23 (0.13)	1,000
Pilot whales*	05-09	12 (0.14)	93 (long-finned); 172 (short-finned)
Harbor seal	05-09	Unknown+	Undetermined
Gray seal	05-09	Unknown+	Undetermined
Harp seal	05-09	Unknown+	Unknown

Source: Waring et al. (2012)

*Total fishery-related serious injuries and mortalities to pilot whales (*Globicephala* sp.) cannot be differentiated to species due to uncertainty in species identification by fishery observers (Waring et al. 2012). However, separate PBRs have been calculated for long-finned and short-finned pilot whales.

+While there have been documented interactions between these species and the Northeast bottom trawl fishery during the five year time period, estimates of bycatch mortality in the fishery have not been generated.

Table 4.5.4-7 Estimated Marine Mammal Mortalities in the Mid-Atlantic Bottom Trawl Fishery			
Species	**Years Observed**	**Mean Annual Mortality (CV)**	**Total PBR**
Atlantic white-sided dolphin	05-09	23 (0.12)	190
Common dolphin (short-beaked)	05-09	110 (0.13)	1,000
Pilot whales*	05-09	30 (0.16)	93 (long-finned); 172 (short-finned)

Source: Waring et al. (2012)
*Total fishery-related serious injuries and mortalities to pilot whales (*Globicephala* sp.) cannot be differentiated to species due to uncertainty in species identification by fishery observers (Waring et al. 2012). However, separate PBRs have been calculated for long-finned and short-finned pilot whales.

Takes of large whales are typically not documented within observer records as large whales are typically entangled in fixed fishing gear and the chances of observing an interaction are small. Although large whales can become anchored in gear, they more often swim off with portions of the fishing gear; therefore, documentation of their incidental take is based primarily on the observation of gear or markings on whale carcasses, or on whales entangled and observed at-sea. Even if a whale is anchored in fishing gear, it is extremely difficult to make any inferences about the nature of the entanglement event and initial interaction between the whale and the gear. Frequently, it is difficult to attribute a specific gear type to an entangled animal based on observed scars or portions of gear remaining attached to whales or their carcasses; however, gillnet gear has been identified on entangled North Atlantic right whales, humpback whales, fin whales, and minke whales. Minke whales have been observed to be taken in the Northeast bottom trawl fishery by fishery observers. The annual estimated mortality and serious injury to minke whales from this fishery was 3.5 (CV = 0.34) between 2005 and 2009 (Waring et al. 2012). At this time, there is no evidence suggesting that other large whale species interact with trawl gear fisheries.

A number of marine mammal management plans are in place along the U.S. east coast to reduce serious injuries and deaths of marine mammals due to interactions with commercial fishing gear. Multispecies fishing vessels are required to adhere to measures in the Atlantic Large Whale Take Reduction Plan (ALWTRP), which manages from Maine through Florida, to minimize potential impacts to certain cetaceans. The ALWTRP was developed to address entanglement risk to right, humpback, and fin whales, and to acknowledge benefits to minke whales in specific Category I or II commercial fishing efforts that utilize traps/pots and gillnets. This includes the Northeast sink gillnet and Mid-Atlantic gillnet fisheries. The ALWTRP calls for the use of gear markings, area restrictions, weak links, and sinking groundline. Fishing vessels would be required to comply with the ALWTRP in all areas where gillnets were used.

Fishing vessels would also be required to comply, where applicable, with the seasonal gillnet requirements of the Bottlenose Dolphin Take Reduction Plan (BDTRP), which manages coastal waters from New Jersey through Florida, and Harbor Porpoise Take Reduction Plan (HPTRP), which manages coastal and offshore waters from Maine through North Carolina. The BDTRP spatially and temporally restricts night time use of gillnets and requires net tending in the Mid-Atlantic gillnet region. The HPTRP aims to reduce interactions between harbor porpoises and gillnets in the Gulf of Maine, southern New England, and Mid-Atlantic regions. In New England waters, the HPTRP implements seasonal area closures and the seasonal use of pingers (acoustic devices that emit a sound) to deter harbor porpoises from approaching the nets. In Mid-Atlantic waters, the HPTRP implements seasonal area closures and the seasonal use of gear modifications for large mesh (7-18 in) and small mesh (<5 to >7 in) gillnets to reduce harbor porpoise bycatch.

An Atlantic Trawl Gear Take Reduction Team was formed in 2006 to address the bycatch of white-sided and common dolphins and pilot whales in Northeast and Mid-Atlantic trawl gear fisheries. While a take reduction plan with regulatory measures was not implemented (bycatch levels were not exceeding allowable thresholds under the MMPA), a take reduction strategy was developed that recommends voluntary measures to be used to reduce the chances for interactions between trawl gear and these marine

mammal species. The two voluntary measures that were recommended are: 1) reducing the number of turns made by the fishing vessel and tow times while fishing at night; and 2) increasing radio communications between vessels about the presence and/or incidental capture of a marine mammal to alert other fishermen of the potential for additional interactions in the area.

Sea Turtles

Sea turtles have been caught and injured or killed in multiple types of fishing gear, including gillnets, trawls, and hook and line gear. However, impact due to inadvertent interaction with trawl gear is almost twice as likely to occur when compared with other gear types (NMFS 2009d). Interaction with trawl gear is more detrimental to sea turtles as they can be caught within the trawl itself and will drown after extended periods underwater. A study conducted in the Mid-Atlantic region showed that bottom trawling accounts for an average annual take of 616 loggerhead sea turtles, although Kemp's ridleys and leatherbacks were also caught during the study period (Murray 2006). Impacts to sea turtles would likely still occur under the Proposed Action even though sea turtles generally occur in more temperate waters than those in the Northeast Multispecies area.

Atlantic Sturgeon

Atlantic sturgeon are known to be captured in sink gillnet, drift gillnet, and otter trawl gear (Stein et al. 2004a, ASMFC TC 2007). Of these gear types, sink gillnet gear poses the greatest known risk of mortality for bycaught sturgeon (ASMFC TC 2007). Sturgeon deaths were rarely reported in the otter trawl observer dataset (ASMFC TC 2007). However, the level of mortality after release from the gear is unknown (Stein et al. 2004a). In a review of the Northeast Fishery Observer Program (NEFOP) database for the years 2001-2006, observed bycatch of Atlantic sturgeon was used to calculate bycatch rates that were then applied to commercial fishing effort to estimate overall bycatch of Atlantic sturgeon in commercial fisheries. This review indicated sturgeon bycatch occurred in statistical areas abutting the coast from Massachusetts (statistical area 514) to North Carolina (statistical area 635) (ASMFC TC 2007). Based on the available data, participants in an ASMFC bycatch workshop concluded that sturgeon encounters tended to occur in waters less than 50 m throughout the year, although seasonal patterns exist (ASMFC TC 2007). The ASMFC analysis determined that an average of 650 Atlantic sturgeon mortalities occurred per year (during the 2001 to 2006 timeframe) in sink gillnet fisheries. Stein et al. (2004a), based on a review of the NMFS Observer Database from 1989-2000, found clinal variation in the bycatch rate of sturgeon in sink gillnet gear with lowest rates occurring off of Maine and highest rates off of North Carolina for all months of the year.

The NEFSC prepared an estimate of the number of encounters of Atlantic sturgeon in fisheries authorized by Northeast FMPs. The analysis estimates that from 2006 through 2010, there were averages of 1,239 and 1,342 encounters per year in observed gillnet and trawl fisheries, respectively, with an average of 2,581 encounters combined annually. Mortality rates in gillnet gear were approximately 20%. Mortality rates in otter trawl gear observed are generally lower, at approximately 5%. The highest incidence of sturgeon bycatch in sink gillnets is associated with depths of <40 meters, larger mesh sizes, and the months April-May. Sturgeon bycatch in ocean fisheries is actually documented in all four seasons with higher numbers of interactions in November and December in addition to April and May. Mortality is also correlated to higher water temperatures, the use of tie-downs, and increased soak times (>24 hours). Most observed sturgeon deaths occur in sink gillnet fisheries. For otter trawl fisheries, Atlantic sturgeon bycatch incidence is highest in depths <30 meters and in the month of June.

The NE multispecies fishery is prosecuted with both bottom otter trawl and sink gillnet gear. These data support the conclusion from the earlier bycatch estimates that the NE multispecies fishery may interact with Atlantic sturgeon. However, the more recent, larger population estimate derived from NEAMAP data (Kocik et al. 2013) suggests that the level of interactions with the NE multispecies fishery is not likely to have a significant adverse impact on the overall Atlantic sturgeon population, or any of the DPSs. On February 6, 2012, NMFS issued two final rules (77 FR 5880-5912; 77 FR 5914-5982) listing five DPS's of Atlantic sturgeon as threatened or endangered. Four DPSs (New York Bight, Chesapeake

Bay, Carolina and South Atlantic) are listed as endangered and one DPS (Gulf of Maine) is listed as threatened. The effective date of the listing is April 6, 2012. Formal consultation under Section 7 of the ESA has been reinitiated and is ongoing for the NE multispecies fishery. The previous October 2010 Biological Opinion (BO) for this fishery concluded that the actions considered would not jeopardize the continued existence of any listed species. This BO will be updated to describe any impacts of the NE multispecies fishery on Atlantic sturgeon DPSs and define any measures needed to reduce those impacts, if necessary. Although interactions between Atlantic sturgeon and the groundfish fishery are likely to occur during the reinitiation period, NMFS determined in an August 28, 2012 memorandum that the amount of interactions is not likely to cause an appreciable reduction in survival and recovery of any of the five DPSs and would not violate ESA sections 7(a)(2) and 7(d).

4.6 HUMAN COMMUNITIES/SOCIAL-ECONOMIC ENVIRONMENT

This EA considers the operation of the FY 2013 sectors and evaluates the effect sectors may have on people's way of life, traditions, and community. These social impacts may be driven by changes in fishery flexibility, opportunity, stability, certainty, safety, and/or other factors. While it is possible that social impacts could be solely experienced by individual sector participants, it is more likely that impacts would be experienced across communities, gear types, and/or vessel size classes.

The remainder of this section reviews the Northeast Multispecies fishery and describes the human communities potentially impacted by the Proposed Action. This includes a description of the sector participants as well as their homeports. Because some of the changes being considered for sector operation plans in 2013 could have an effect on the lobster fishery an overview of that fishery is included as well.

4.6.1 Overview of New England Groundfish Fishery

New England's fishery has been identified with groundfishing both economically and culturally for over 400 years. 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 Northeast Multispecies fishery related primarily to cod and haddock. Today, the Northeast Multispecies FMP (large-mesh and small-mesh) includes a total of 13 species of groundfish (Atlantic cod, haddock, pollock, yellowtail flounder, witch flounder, winter flounder, windowpane flounder, American plaice, Atlantic halibut, redfish, ocean pout, white hake, and wolffish) harvested from three geographic areas (Gulf of Maine, Georges Bank, and southern New England/Mid-Atlantic Bight) representing 19 distinct stocks.

Prior to the industrial revolution, the groundfish fishery focused primarily on cod. The salt cod industry, which preserved fish by salting while still at sea, supported a hook and line fishery that included hundreds of sailing vessels and shore-side industries including salt mining, ice harvesting, and boat building. Late in the 19th century, the fleet also began to focus on Atlantic halibut with landings peaking in 1896 at around 4,900 tons (4,445 mt).

From 1900 to 1930, the fleet transitioned to steam powered trawlers and increasingly targeted haddock for delivery to the fresh and frozen fillet markets. With the transition to steam powered trawling, it became possible to exploit the groundfish stocks with increasing efficiency. This increased exploitation resulted in a series of boom and bust fisheries from 1930 to 1960 as the North American fleet targeted previously unexploited stocks, depleted the resource, and then transitioned to new stocks.

In the early 1960's, fishing pressure increased with the discovery of haddock, hake, and herring off of Georges Bank and the introduction of foreign factory trawlers. Early in this time period, landings of the principal groundfish (cod, haddock, pollock, hake, and redfish) peaked at about 650,000 tons (589,670

mt). However, by the 1970's, landings decreased sharply to between 200,000 and 300,000 tons (181,437 and 272,155 mt) as the previously virgin GB stocks were exploited (NOAA 2007).

The exclusion of the foreign fishermen by the Fisheries Conservation and Management Act in 1976, coupled with technological advances, government loan programs, and some strong classes of cod and haddock, caused a rapid increase in the number and efficiency of U.S. vessels participating in the Northeast groundfish fishery in the late 1970's. This shift resulted in a temporary increase in domestic groundfish landings; however, overall landings (domestic plus foreign) continued to trend downward from about 200,000 tons (181,437 mt) to about 100,000 tons (90,718 mt) through the mid 1980's (NOAA 2007).

In 1986, the NEFMC implemented the Northeast Multispecies FMP with the goal of rebuilding stocks. Since Amendment 5 in 1994, the multispecies fishery has been administered as a limited access fishery managed through a variety of effort control measures including DAS, area closures, trip limits, minimum size limits, and gear restrictions. Partially in response to those regulations, landings decreased throughout the latter part of the 1980's until reaching a more or less constant level of around 40,000 tons (36,287 mt) annually since the mid 1990's.

In 2004, the final rule implementing Amendment 13 to the Northeast Multispecies FMP allowed for self-selecting groups of limited access groundfish permit holders to form sectors. These sectors developed a legally binding operations plan and operated under an allocation of GB cod. While approved sectors were subject to general requirements specified in Amendment 13, sector members were exempt from DAS and some of the other effort control measures that tended to limit the flexibility of fishermen. The 2004 rule also authorized implementation of the first sector, the GB Cod Hook Sector. A second sector, the GB Cod Fixed Gear Sector, was authorized in 2006.

Through Amendment 16, the NEFMC sought to rewrite groundfish sector policies with a scheduled implementation date of May 1, 2009. When that implementation date was delayed until FY 2010, the NMFS Regional Administrator announced that, in addition to a previously stated 18 percent reduction in DAS, interim rules would be implemented to reduce fishing mortality during FY 2009. These interim measures generally reduced opportunity among groundfish vessels through:

- differential DAS counting, elimination of the SNE/MA winter flounder SAP
- elimination of the state waters winter flounder exemption
- revisions to incidental catch allocations, and
- a reduction in some groundfish allocations (NOAA 2009).

In 2007, the Northeast Multispecies fishery included 2,515 permits. Of these permits about 1,400 were limited access, and 658 vessels actively fished. Those vessels include a range of gear types including hook, bottom longline, gillnet, and trawlers (NEFMC 2009a). In FY 2009, between 40 and 50 of these vessels were members of the GB Cod Sectors. The passage of Amendment 16 prior to FY 2010 issued in a new era of sector management in the New England groundfish fishery. Over 50 percent of eligible northeast groundfish multispecies permits and over 95 percent of landings history were associated with sectors in FY 2010. Approximately 56 percent of the eligible northeast groundfish multispecies permits constituting between approximately 99.4 percent and 77.5 percent of the various species ACLs were included in sectors for FY 2011. The remaining vessels were common pool groundfishing vessels.

Amendment 16 to the Northeast Multispecies Fishery Management Plan (FMP) was finally implemented for the New England groundfish fishery starting on May 1st 2010, the start of the 2010 fishing year. The new management program contained two substantial changes meant to adhere to the catch limit requirements and stock rebuilding deadlines of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (MSA). The first change developed "hard quota" annual catch limits (ACLs) for all 20 stocks in the groundfish complex. The second change expanded the use of Sectors, which are allocated subdivisions of ACLs called Annual Catch Entitlements (ACE) based on

each sector's collective catch history. Sectors received ACE for nine of 13 groundfish species (14 stocks + quotas for Eastern U.S./ Canada cod and haddock; 16 ACEs) in the FMP and became exempt from many of the effort controls previously used to manage the fishery.

During the first year of sector management seventeen sectors operated, each establishing its own rules for using its allocations. Vessels with limited access permits that joined sectors were allocated 98% of the total commercial groundfish sub-ACL, based on their collective level of historical activity in the groundfish fishery. Approximately half (46%) of the limited access groundfish permits opted to remain in the common pool. Common pool vessels act independently of one another, with each vessel constrained by the number of DAS it can fish, by trip limits, and by all of the time and area closures. These restrictions help ensure that the groundfish catch of common pool vessels does not exceed the common pool's portion of the commercial groundfish sub- ACL for all stocks (about 2% for 2010) before the end of the fishing year.

In the second year of sector management 58% of limited access permits participated in one of 16 sectors or one of 2 lease only sectors. From 2010 to 2011 the number of groundfish limited access eligibilities belonging to a sector increased by 66, while the number of these permits in the common pool decreased by 85. At the start of the 2011 fishing year, vessels operating within a sector were allocated about 98% of the total groundfish sub-ACL, based on historical catch levels. Those vessels that opted to remain in the common pool were given access to about 2% of the groundfish sub-ACL based on the historic catch. The same effort controls employed in 2010 were again used in 2011, to ensure the groundfish catch made by common pool vessels did not exceed the common pool's portion of the commercial groundfish sub-ACL. Although some trends in the fishery are a result of management changes made to the fishery in the years prior to Amendment 16, many of these trends are also a reflection of the current system of sector management.

4.6.2 Trends in the Number of Vessels

In 2010, the first year of sector management, the Northeast Multispecies fishery issued 1,382 permits, not including groundfish limited access eligibilities held as Confirmation of Permit History (CPH). Out of these permits, 753 vessels belonged to a sector and 640 remained in the Common Pool. Not all permitted vessels were active and not all active vessels fished groundfish. Of the 740 sector vessels issued groundfish permits, only 440 were considered active, having revenue from any landed species, and only 303 of those had revenue from at least one groundfish trip. Among common pool vessels, 456 were considered active, and only 142 vessels had made at least one groundfish trip.

The overall trend since the start of sector management has been a decreasing number of vessels with a limited access groundfish permit. By 2011 the total number of vessels with a limited access groundfish permit decreased slightly to 1,279. The number of vessels belonging to a sector actually increased to 772 in 2011 while the number of vessels in the Common Pool decreased to 518. Of the 772 sector vessels issued a groundfish permit in 2011, 446 were considered active, and only 301 of those had revenue from at least one groundfish trip. Among common pool vessels, 366 were considered active, and only 121 vessels had made at least one groundfish trip.

Table 4.6.2-1 Number of vessels by fishing year									
				2010			2011		
	2007	2008	2009	Total	Sector Vessels	Common Pool	Total	Sector Vessels	Common Pool
Vessels with a limited access groundfish permit	1413	1410	1431	1382	753	640	1279	772	518
... those with revenue from any species	1082	1012	957	890	440	456	805	446	366
... those with revenue from at least one groundfish trip	658	611	570	445	303	142	420	301	121
... those with no landings	331 (32%)	398 (28%)	474 (33%)	492 (36%)	313 (42%)	184 (29%)	474 (37%)	326 (42%)	152 (30%)

* These numbers exclude groundfish limited access eligibilities held as Confirmation of Permit History (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 2010 and 2011 data for either sector or common pool.

A key aspect of Amendment 16, and catch share programs in general, is the ability to jointly decide how a sector will harvest its ACE through redistribution within a sector and the ability to transfer ACE between sectors. Because it is then not possible to identify the extent to which inactive vessels in a sector may benefit if other sector vessels harvest their allocation, changes in the number of inactive vessels may describe a transfer of allocation and not necessarily vessels exiting the fishery. In 2010, 492 vessels (36%) were inactive (no landings). Of these inactive vessels, 313 were sector vessels and 184 were common pool vessels. By 2011 the total number of inactive vessels had declined to 474 but because the number of vessels with a limited access groundfish permit declined, there was only a slight rise in the relative proportion of inactive vessels (37%). The number of inactive sector vessels increased to 326 in 2011, but again because the number of vessels with a limited access groundfish permit belonging to a sector also increased, the relative proportion of inactive sector vessels (42%) remained the same. 152 common pool vessels were inactive in 2011, which is about 30% of the Common Pool. The number of inactive vessels in 2011 can be compared to the number of inactive vessels in other years: 331 vessels (32%) in 2007, 398 vessels (28%) in 2008, and 474 vessels (33%) in 2009.

4.6.3 Trends in Landings

Total groundfish landings on trips made by vessels possessing a limited access groundfish permit in 2011 were 61.7 million pounds, which is an increase from 2010 but a decline from a recent high of 72.2 million pounds in 2008. 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 178.1 million pounds in 2010 to 213.8 million pounds in 2011. Total landings of all species made by limited access vessels in the Northeast Multispecies fishery was about 275.5 million pounds in 2011. This compares to landings ranging from 259.5 million pounds to 277.1 million pounds in the 2007–2010 fishing years (Table 4.6.3-1). While sector vessels accounted for 69% of all landings made in 2011, sector vessels also made 99% of groundfish landings and 60% of non-groundfish landings.

Table 4.6.3-1 Landings in Thousands of Pounds by Year									
				2010			2011		
Landings	2007	2008	2009	Total	Sector Vessels	Common Pool	Total	Sector Vessels	Common Pool
Total Landings	259448	277118	258954	236695	155529	81166	275506	85147	5580
Total Groundfish Landings	64004	72162	69775	58622	57217	1404	61721	61038	471
Total Non-groundfish Landings	195444	204955	189180	178073	98312	79762	213785	24108	5109

Combined, 161 million (live) pounds of ACE was allotted to the sectors in 2011 but only 70 million (live) pounds were landed. Of the 16 ACEs allocated to sectors, the catch of 7 stocks approached (>80% conversion) the catch limit set by the total allocated ACE (Table 4.6.3-2). By comparison, the catch of only 5 stocks approached the catch limit set by the total allocated ACE in 2010. The catch of white hake in 2011 was particularly close to reaching the limit, with 98% of the white hake ACE being realized. As was the case in 2010, 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 63 million pounds (62%) of the un-landed ACE in 2011.

Table 4.6.3 – 2 Catch and ACE (live lbs)						
	2010			2011		
	Allocated ACE	Catch	% caught	Allocated ACE*	Catch	% caught
Cod, GB East	717,441	562,610	*78%*	**431,334**	**357,578**	***83%***
Cod, GB West	**6,563,099**	**5,492,557**	***84%***	9,604,207	6,727,837	*70%*
Cod, GOM	**9,540,389**	**7,991,172**	***84%***	**11,242,220**	**9,561,153**	***85%***
Haddock, GB East	26,262,695	4,122,910	*16%*	21,122,565	2,336,964	*11%*
Haddock, GB West	62,331,182	13,982,173	*22%*	50,507,974	6,101,400	*12%*
Haddock, GOM	1,761,206	819,069	*47%*	1,796,740	1,061,841	*59%*
Plaice	6,058,149	3,305,950	*55%*	7,084,289	3,587,356	*51%*
Pollock	35,666,741	11,842,969	*33%*	32,350,451	16,297,273	*50%*
Redfish	14,894,618	4,647,978	*31%*	17,369,940	5,951,045	*34%*
White hake	**5,522,677**	**4,687,905**	***85%***	**6,708,641**	**6,598,273**	***98%***
Winter flounder, GB	4,018,496	3,036,352	*76%*	**4,679,039**	**4,241,177**	***91%***
Winter flounder, GOM	293,736	178,183	*61%*	750,606	343,152	*46%*
Witch flounder	**1,824,125**	**1,528,215**	***84%***	2,839,697	2,178,941	*77%*
Yellowtail flounder, CC/GOM	1,608,084	1,268,961	*79%*	**2,185,802**	**1,743,168**	***80%***
Yellowtail flounder, GB	**1,770,451**	**1,625,963**	***92%***	**2,474,662**	**2,176,921**	***88%***
Yellowtail flounder, SNE	517,372	340,662	*66%*	**963,033**	**795,267**	***83%***
Grand Total	179,350,461	65,433,630	*36%*	172,111,201	70,059,346	*41%*

*includes FY2010 carryover

Notes: stocks with > 80% ACE conversion highlighted in bold font

4.6.4 Trends in Revenue

During the first year of sector management, groundfish revenues from vessels with limited access groundfish permits in 2010, were $83 million. This was lower than 2007 – 2009 nominal revenues which ranged from $84.1 million in 2009 to $90.1 million in 2008. By 2011 the groundfish revenues from vessels with limited access groundfish permits had risen to $90.1 million. During the same time Non-groundfish revenues in 2011 were $240.7 million. Non-groundfish revenues from 2007 – 2010 ranged from $186.1 million in 2009 to $211.5million in 2010. Revenues from all species for 2011 totaled $330.8 million, which compares to pervious revenues that ranged from a low of $271.1 million in 2009 to a high of $298.2 million in 2007. Sector vessels accounted for about 71% of all revenue earned by limited access permitted vessels in 2011. Sector vessels also earned 99% of revenue from groundfish landings and 60% of non-groundfish revenue.

Table 4.6.4-1
Revenue in Thousands of Dollars by Year

				2010			2011		
Landings	**2007**	**2008**	**2009**	**Total**	**Sector Vessels**	**Common Pool**	**Total**	**Sector Vessels**	**Common Pool**
Total Landings	$298,246	$291,479	$266,765	$294,505	$196,625	$97,880	$330,885	$233,922	$96,962
Total Groundfish Landings	$89,055	$90,132	$84,112	$82,984	$80,750	$2,234	$90,115	$89,144	$971
Total Non-groundfish Landings	$209,191	$201,347	$182,653	$211,521	$115,875	$95,645	$240,769	$144,778	$95,991

4.6.5 Trends in ACE Leasing

Starting with allocations in 2010, each sector was given an initial annual catch entitlement (ACE) determined by the pooled potential sector contribution (PSC) from each vessel joining that sector. 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 the first year of sector management, 281 Sector-affiliated vessels had catch that exceeded their individual PSC allocations for at least one stock. These vessels are then assumed to have leased in an additional 22 million pounds of ACE and/or PSC with an approximate value of $13.5 million. In 2011 256 Sector-affiliated vessels had catch that exceeded their individual PSC allocations. To account for the additional catch these vessels would have had to lease an additional 31 million pounds of quota, either as PSC from within the sector or as ACE from another sector. Although the number of vessels leasing ACE fell by 9% the estimated number of pounds leased was almost 41% greater in 2011 than in 2010.

4.6.6 Trends in Effort

Some of the proposed benefits of a catch share system of management are the potential efficiency gains associated with increasing operational flexibility. Being released from the former effort controls but being held by ACLs, sector vessels were expected to increase their catch per unit effort by decreasing effort. Between 2009 and 2010, the total number of groundfish fishing trips and total days absent on groundfish trips declined by 48% and 27%, respectively (26,056 trips in 2009 vs. 13,441 trips in 2010;

24,237 days absent in 2009 vs. 17,614 days absent in 2010) (Table 4.6.5-1). During the second year of sector management, 2011, the number of groundfish fishing trips and total days absent on groundfish trips increased by 19% and 18% respectively (13,441 trips in 2010 vs. 15,929 trips in 2011; 17,614 days absent in 2010 vs. 20,724 days absent in 2011) (Table 4.6.5-1). Note, in the following analysis, a 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. The following data is taken from different source materials (VMS, etc.) than the data presented earlier in Section 4.1, and for the reasons stated in Section 4.1, this data may be slightly different than what is presented elsewhere in the document. While the number of groundfish fishing trips and total days absent on groundfish trips increased during the second year of sector management the number of non-groundfish trips, and days absent on non-groundfish trips, has decreased in 2011 (41,753 trips in 2010 vs. 36,386 trips in 2011; 31,552 days absent in 2010 vs. 27,913 days absent in 2011) (Table 4.6.5-1). Average trip length on both groundfish and non-groundfish trips were not statistically different during the time series (Table 4.6.6-1).

Table 4.6.6-1
Effort by Active Vessels

	2007	2008	2009	2010			2011		
				Total	Sector Vessels	Common Pool	Total	Sector Vessels	Common Pool
Number of Groundfish Trips	27,004	26,468	26,056	13,441	11,159	2,282	15,929	13,642	2,287
Number of non-groundfish Trips	46,635	46,721	39,943	41,753	16,791	24,962	36,386	17,002	19,384
Number of days absent on groundfish trips	28,158	27,146	24,237	17,614	16,057	1,558	20,724	19,227	1,498
Number of days absent on non-groundfish trips	35,186	36,134	31,241	31,552	15,446	16,106	27,913	14,973	12,940
Average trip length on groundfish trips	7.63	7.82	0.94	1.31	1.44	0.69	1.30	1.41	0.66
(standard deviations)	(6.15)	(5.98)	(1.85)	(2.08)	(2.23)	(0.76)	(2.14)	(2.28)	(0.66)
Average trip length on non-groundfish trips	5.42	4.78	0.84	0.79	0.96	0.68	0.80	0.93	0.69
(standard deviation)	(5.95)	(5.67)	(1.57)	(1.47)	(1.69)	(1.30)	(1.45)	(1.65)	(1.24)

4.6.7 Trends in Fleet Characteristics

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 groundfish fleet is divisible into four "vessel size categories," vessels less than 30 feet in length, vessels between 30 and 50 feet in length, vessels between 50 and 75 feet in length and vessels greater than 75 feet in length. As mentioned above, the number of active vessels in 2011 had declined compared to the previous three years and this decline occurred across all vessel size categories between 2009 and 2011. The number of vessels smaller than 30' has experienced the greatest decline of 32% between 2009 and 2011 (78 to 53 vessels). The 30' to < 50' vessel size category, which has the largest number of active vessels, experienced a 16% decline (500 to 419 active vessels) during the past 3 years. Most (229) sector vessels fell into this 30' to 50' size category. The 50' to < 75' vessel size category, containing the second largest number of vessels, experienced an 11% reduction during 2009 to 2011 (247 to 220 active vessels). The 50' to < 75' size category also had the second largest number of sector vessels with 128. The number of active vessels in

largest (75' and above) vessel size category declined by 9% between 2009 and 2011. The decline was relatively consistent across all four years in all vessel size categories.

Between the first two years of sector management, the numbers of vessels that joined a sector or stayed in the common pool were about evenly split within size categories with the exception of the largest and smallest categories. For active vessels larger than 75' total length, 67% belong to a sector in 2010 and 69% belong to a sector in 2011. Of active vessels in the smallest size category, those smaller than 30' in length, 84% remained in the common pool in 2010 while 89% of vessels smaller than 30' remained in the common pool in 2011. For active vessels in the 30' to 50' and 50' to 75' range there has been a growing proportion of vessels belonging to sectors. In 2010, active sector vessels comprised 47% and 54% of the 30' to 50' and 50' to 75' ranges respectively. By 2011, those proportions had increased to 55% and 58% of active sector vessels in the 30' to 50' and 50' to 75' ranges.

Table 4.6.7-1
Vessel activity by size class

				2010			2011		
Vessel size	**2007**	**2008**	**2009**	**Total**	**Sector Vessels**	**Common Pool**	**Total**	**Sector Vessels**	**Common Pool**
Vessels with landings from any species									
Less than 30	83	77	78	70	11	59	53	6	47
30 to < 50	572	528	500	475	225	250	419	229	190
50 to < 75	289	267	247	231	125	106	220	128	92
75 and above	139	140	132	120	79	41	120	83	37
Total	1082	1012	957	896	440	456	812	446	366
Vessels with at least one groundfish trip									
Less than 30	29	26	33	23	2	21	19	1	18
30 to < 50	351	331	308	241	152	89	220	146	74
50 to < 75	194	175	156	117	88	29	115	92	23
75 and above	84	79	73	64	61	3	68	62	6
Total	658	611	570	445	303	142	422	301	121

Fishing effort, as described by either the number of trips taken or the total number of days absent, varies considerably by vessel size. In 2011 more than two thirds of groundfish trips were made by vessels ranging in size from 30 to 50 feet in total length. Compared to 2010, 2011 saw increases in the numbers of groundfish trips and the total number of days absent on groundfish trips across almost all vessel size classes. In percentage terms, the largest increases in groundfish trips and days absent on groundfish trips occurred in the less than 30' vessel size category (100% and 69%, respectively). However, there were only a couple hundred trips per year in this vessel size category. In terms of magnitude, the 30' to < 50' vessel size category had the greatest increases in groundfish trips and days absent (1,874 more groundfish trips and 1,265 more days absent on groundfish trips from 2010 to 2011). The largest vessel class (75' and above) experienced a reduction of 5% in groundfish trips but an 11% increase in days absent on groundfish trips. The 50' to < 75' vessel size category had increases of about 19% in both groundfish trips and days absent on groundfish trips. From 2010- 2011, non-groundfish trips and the number of days absent on non-groundfish trips, has declined for all vessel size classes.

Table 4.6.7-2 Vessel effort (as measured by number of trips and days absent) by vessel size category									
				2010			2011		
Vessel Size	2007	2008	2009	Total	Sector Vessels	Common Pool	Total	Sector Vessels	Common Pool
Number of groundfish trips									
Less than 30	272	239	435	137	2	135	274	15	259
30 to < 50	18200	18453	19349	9240	7509	1731	11114	9401	1713
50 to < 75	7018	6356	4971	2829	2442	387	3368	3067	301
75 and above	1525	1424	1301	1235	1206	29	1173	1159	14
Total	27015	26472	26056	13441	11159	2282	15929	13642	2287
Number of non-groundfish trips									
Less than 30	2534	2249	1784	1703	370	1333	1372	258	1114
30 to < 50	28892	27586	23216	25204	9678	15526	21585	10443	11142
50 to < 75	11979	12825	12090	12321	5456	6865	10920	5036	5884
75 and above	3248	4073	2853	2523	1287	1236	2507	1264	1243
Total	46653	46733	39943	41751	16791	24960	36384	17001	19383
Number of days absent on groundfish trips									
Less than 30	101	82	160	61	1	60	103	7	96
30 to < 50	9580	9586	8794	5067	3958	1109	6332	5216	1116
50 to < 75	10701	9857	8278	5656	5305	351	6713	6447	266
75 and above	7750	7582	7006	6831	6792	38	7576	7558	19
Total	28132	27107	24237	17614	16057	1558	20724	19227	1498
Number of days absent on non-groundfish trips									
Less than 30	665	678	573	537	123	414	419	81	337
30 to < 50	11069	10455	8657	9540	3633	5906	8215	3683	4532
50 to < 75	13006	13557	12681	12545	6491	6053	11498	6414	5084
75 and above	10472	11483	9330	8930	5199	3731	7780	4795	2986
Total	35212	36173	31241	31551	15446	16105	27912	14972	12940

4.6.8 Fishing Communities

There are over 100 communities that are homeport to one or more Northeast groundfishing vessels. These ports occur throughout the coastal northeast and mid-Atlantic. Consideration of the social impacts on these communities from proposed fishery regulations is required as part of the National Environmental Policy Act (NEPA) of 1969 and the Magnuson Stevens Fishery Conservation and Management Act, 1976. 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. In recent amendments to the fishery management plan the council has categorized communities dependent on the groundfish resource into primary and secondary port groups so that community data can be cross-referenced with other demographic information. Appendix B provides descriptions of 24 of the most important communities involved in the multispecies fishery and further descriptions of North East fishing communities in general can be found on North East Fisheries Science Center's website (http://www.nefsc.noaa.gov/read/socialsci/community_profiles/).

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 small ports and communities that may only have a small number of vessels and that information can easily be attributed to a particular vessel or individual.

4.6.8.1 Vessel Activity

At the state level, Massachusetts has the highest number of active vessels with a limited access groundfish permit. From 2007 to 2011 the total number of active vessels with revenue from any species on all trips declined 26% (1,082 to 805). All states have shown a decline in the number of active vessels since 2007, but the largest percentage decline has occurred in Connecticut where the number of active vessels dropped 39% by 2011 (Table 4.6.7.1-1). Just over half of the active vessels belonging to a sector have a homeport in Massachusetts (262 vessels), while New Jersey and Connecticut are the two states in the North East with the fewest vessels belonging to a sector. At the level of home port, there is even greater variation between the ports with regard to the numbers of active vessels.

Table 4.6.7.1-1
Number of Active Vessels with Revenue from any Species (all trips) by Home Port and State

		Year								
					2010			2011		
Home Port State/City		2007	2008	2009	Total	Sector Vessels	Common Pool	Total	Sector Vessels	Common Pool
CT		18	13	13	12	4	8	11	4	7
MA		544	502	482	444	264	183	396	262	134
	BOSTON	80	69	67	57	41	16	53	41	12
	CHATHAM	46	41	42	43	31	12	39	28	11
	GLOUCESTER	124	116	115	109	70	39	95	68	27
	NEW BEDFORD	93	91	87	69	48	22	70	53	17
ME		128	116	114	103	63	40	88	70	20
	PORTLAND	22	18	17	17	15	2	16	15	1
NH		70	65	62	57	37	22	52	34	20
NJ		67	71	63	58	2	56	52	6	46
NY		98	100	97	95	15	80	92	16	76
RI		110	104	95	87	43	45	84	44	41
	POINT JUDITH	58	54	50	46	33	14	45	34	12
All Other States		47	41	35	39	13	26	37	14	23
Grand Total		1,082	1,012	957	890	440	456	805	446	366

Massachusetts is also the state with the highest number of active vessels with revenue from at least one groundfish trip. From 2007 to 2011 the total number of active vessels with revenue from at least one groundfish trip declined 36% (658 to 420). While all states showed a decline in the number of vessels making groundfish trips the largest percentage decline (59%: 41 to 17 vessels) occurred in New Jersey (Table 4.6.8.1-2). Of the sector vessels making groundfish trips in 2011 almost two thirds of them have a homeport in Massachusetts (186 vessels). Again, New Jersey and Connecticut are the two states with the fewest sector vessels making groundfish trips.

Table 4.6.8.1-2
Number of Vessels with Revenue from at Least One Groundfish Trip by Home Port and State

		Year								
					2010			2011		
Home Port State/City		2007	2008	2009	Total	Sector Vessels	Common Pool	Total	Sector Vessels	Common Pool
CT		9	8	8	7	3	4	5	2	3
MA		341	321	312	238	189	49	224	186	38
	BOSTON	54	49	46	35	33	2	34	34	0
	CHATHAM	26	27	28	26	23	3	26	23	3
	GLOUCESTER	95	88	98	74	59	15	70	55	15
	NEW BEDFORD	60	62	52	33	29	4	37	32	5
ME		78	69	65	43	38	5	47	43	4
	PORTLAND	20	16	15	15	14	1	15	15	0
NH		44	42	42	32	26	6	29	23	6
NJ		41	34	26	21	1	20	17	1	16
NY		52	56	47	40	8	32	43	9	34
RI		78	70	60	55	34	21	49	32	17
	POINT JUDITH	43	36	32	31	28	3	28	27	1
All Other States		15	11	12	10	5	5	8	5	3
Grand Total		658	611	570	445	303	142	420	301	121

4.6.8.2 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 (Olson and Clay 2001, Thunberg 2007, Thunberg 2008, NMFS 2010, and Clay et al. 2008).

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. 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. Crew positions are measured by summing the average crew size of all active vessels on all trips. In 2011 vessels with limited access groundfish permits provided 2,129 crew positions with about half coming from vessels with home ports in Massachusetts. Since 2007, the total number of crew positions provided by limited access groundfish vessels has declined by 21% (2,687 positions to 2129). Declines in crew positions vary across home port states with some states adding crew positions in 2011 (Table 4.6.8.2-1). Vessels with a home

port in Connecticut and New Hampshire have experienced the largest percentage decline (20%: 52 to 41 crew positions in CT and 28%: 139 to 100 crew positions in NH), while vessels home ported in New York have shown an increase in crew positions (3%: 204 to 211 crew positions). All other home port states had crew position reductions ranging from 10 to 18% between 2007 and 2011 (Table 4.6.8.2-1).

Table 4.6.8.2-1
Number of Crew Positions and Crew-Days on Active Vessels by Home Port and State

Home Port State		Year				
		2007	2008	2009	2010	2011
CT						
	Total CREW POSITIONS	52	39	38	39	41
	Total CREW-DAYS	4,261	3,779	3,317	3,614	3,067
MA						
	Total CREW POSITIONS	1,402	1,311	1,152	1,104	1,063
	Total CREW-DAYS	98,094	93,182	86,234	77,422	82,238
ME						
	Total CREW POSITIONS	276	250	216	220	204
	Total CREW-DAYS	17,872	15,882	14,414	14,427	14,148
NH						
	Total CREW POSITIONS	139	123	114	109	100
	Total CREW-DAYS	6,443	6,135	5,925	3,813	4,663
NJ						
	Total CREW POSITIONS	167	185	159	140	143
	Total CREW-DAYS	12,035	12,987	10,708	9,801	9,364
NY						
	Total CREW POSITIONS	204	214	205	201	211
	Total CREW-DAYS	16,656	15,975	15,479	15,020	15,439
RI						
	Total CREW POSITIONS	304	281	253	243	238
	Total CREW-DAYS	32,072	29,690	24,167	25,454	24,938
OTHER NORTHEAST						
	Total CREW POSITIONS	145	144	123	133	128
	Total CREW-DAYS	12,158	14,794	12,166	11,626	11,767
Total						
	Total CREW POSITIONS	2,687	2,545	2,260	2,190	2,129
	Total CREW-DAYS	199,593	192,423	172,410	161,178	165,624

A crew day is another measure of employment opportunity that incorporates information about the time spent at sea earning a share of the revenue. Similar to a "man-hour" this measure is calculated by multiplying a vessel's crew size by the days absent from port, and since the number of trips affects the crew-days indicator, the indicator is also a measure of work opportunity. 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 2011 vessels with limited access groundfish permits used 165,624 crew days with close to half coming from vessels with home ports in Massachusetts. Since 2007 the total number of crew days used by

limited access groundfish vessels has declined by 17% (199,593 to 165,624 crew days). Declines in crew days occurred across all home port states, but since 2010 some states have experienced some small increases in the number of crew days (Table 4.6.4.2-1). Vessels with a home port in New Hampshire experienced the largest percentage decline in crew days (28%: 6,443 to 4,663 crew days), while vessels home ported in states other than CT, MA, ME, NH, NJ, NY, and RI had the lowest percentage decline (3%: 12,158 to 11,767 crew days). All other home port states had crew position reductions ranging from 10% to 17% between 2007 and 2011 (Table 4.6.8.2-1).

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.

4.6.8.3 Consolidation and Redirection

The multiple regulatory constraints placed on common pool groundfishermen are intended to control their effort and catch per unit effort (CPUE) as a means to limit mortality. Exemptions to many of these controls, which have been granted to sectors in previous years, may increase the CPUE of sector participants. As a result, sector fishermen may have additional time that they could direct towards non-groundfish stocks that they otherwise would not have pursued, resulting in redirection of effort into other fisheries. Additionally, to maximize efficiency, fishermen within a single sector may be more likely to allocate fishing efforts such that some vessels do not fish at all; this is referred to as fleet consolidation.

Both redirection and consolidation have been observed when management regimes for fisheries outside the Northeast United States (U.S.) shifted toward a catch share management regime such as sectors. For example, research following the rationalization of the halibut and sablefish fisheries by the North Pacific Fishery Management Council found individuals who received enough quota shares were able to continue fishing with less competition, greater economic certainty, and over a longer fishing season (Matulich and Clark 2001). However, individuals who did not receive enough of a catch share either bought or leased catch shares from other fishermen or sold their quota. Similarly, one year after implementation of the Bering Sea-Aleutian Island crab fishery Individual Transferable Quota (ITQ), a study found that about half of the vessels that fished the 2004/2005 Bering Sea Snow Crab fishery did not fish the following year. However, research on the ITQ plan for the British Columbia halibut fishery found efficiency gains were greatest during the first round of consolidation, and little incentive to increase efficiency (or continue consolidation) existed afterward (Pinkerton and Edwards 2009).

The scope of consolidation and redirection of effort that may be expected to result from sector operations in FY 2013 is difficult to predict. Data is now available for the first two years of expanded sector operations, FY 2010 and FY 2011, which is discussed above. In addition, the activities of FY 2012 sectors and individual sector's predictions for expected consolidation in FY 2013 are discussed further in Section 1.1.3.

4.6.8.4 Overview of the Ports for FY 2013 Sectors

Sector fishermen would utilize ports throughout the Middle Atlantic and New England. The sector operations plans listed home ports and landing ports that the sectors plan to use in FY 2013. The following table summarizes these ports.

Table 4.6.8.4-1 Home Ports and Landing Ports for Sector Fishermen in FY 2013 (As reported by sectors in their FY 2013 operations plans)				
State	**Primary Ports[a]**		**Other Ports[b]**	
Connecticut:	N/A		New London, Stonington	
Massachusetts	Boston Chatham Gloucester Harwich Marshfield Menemsha	New Bedford Newburyport Plymouth Rockport Sandwich Situate	Barnstable Dennis Hyannis Nantucket	Provincetown
Maine	Boothbay Harbor Harpswell (Cundy's Harbor) Kennebunkport Port Clyde Portland Southwest Harbor Stonington		Bar Harbor Five Islands Jonesport Phippsburg (Sebasco Harbor) Rockland	Saco South Bristol Tenant's Harbor Tremont (Bass Harbor) Winter Harbor
New Hampshire	Portsmouth Rye Seabrook		N/A	
New Jersey	N/A		Barnegut Light Cape May Point Pleasant	
New York	Montauk		Hampton Bays- Shinnecock Greenport	
Rhode Island	Point Judith Newport		N/A	
Virginia	N/A		Chincoteague, Greenbackville	

Notes:

[a] Listed by one or more sector as a primary port in their FY 2013 operations plans. A primary port refers to those ports used to land the majority of catch from active sector vessels or where the majority of sector vessels are home ported.

[b] Includes those ports listed by one or more sector as a secondary port but not a primary port. The other ports category includes all remaining ports that may be used by sector vessels.

Appendix B contains a description of each of the primary ports. The primary port descriptions are largely based on information provided in the Community Profiles for Northeast US Fisheries, by NEFSC (2009). Please refer to the source documents for a list of references as all of the in-text citations in this section are implied to be 'as cited in' NEFSC (2009). While these descriptions focus on the primary ports, the other ports are still considered in this EA. Please refer to the Community Profiles for Northeast US Fisheries (NEFSC 2009) (http://www.nefsc.noaa.gov/read/socialsci/community_profiles) for descriptions of these other ports.

4.6.9 Overview of the American Lobster Fishery

Today, the commercial sector of the American lobster fishery and the communities involved in that fishery can be seen as the product of resource fluctuation, social and economic conditions as well as changes in management. These conditions impact, not only to the lobster fishery but other fisheries in the region as well. The numbers of fishermen entering or leaving the lobster fishery are often linked to the relative conditions of other fisheries. Also, because of the changes considered in the current sector operation plans could have an effect on the lobster fishery and its communities an overview of lobster fishery is included below.

The commercial lobster fishery is described as having started in the 1840s, concurrent with the development of the re-circulating seawater tank which allowed for an increased distribution of caught lobster (Acheson, 2010). Early in the fisheries history effort was managed by individual states with little interstate uniformity. It wasn't until 1972 that states along the Atlantic coast began cooperative management of the resource under a NMFS State-Federal Partnership Program. As part of this partnership program, the Northeast Maine Fisheries Board (NMFB) was formed to help research and expand management of the American lobster. Following implementation of the 1976 Fisheries Conservation and Management Act (FCMA), the NMFB developed a comprehensive management plan which was submitted to the newly created New England Fishery Management Council in 1978. This management plan would act as a precursor to the NEFMC's American Lobster Fishery Management Plan (ALFMP) that was eventually adopted in 1983. From 1983 to 1994 the lobster fishery was primarily managed through a standardized gear requirement, a minimum landed size and a prohibition on landing 'berried' females. The first real step in limiting effort in the fishery was not taken until 1994 when Amendment 5 to the FMP included a permit moratorium that restricted entry (Acheson, 1997).

Concurrent with the Federal management of the lobster fishery was the implementation of an Interstate Fishery Management Plan (ISFMP) developed by the ASMFC in 1978. The original plan's primary purpose was to establish regulatory uniformity across state and federal jurisdictions, but by 1995, it was becoming clear that maintaining separate management authority by the Atlantic States Marine Fisheries Commission (ASMFC) and its member states under the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA) and the NMFS under the FCMA was not accomplishing a unified approach to lobster management. Federal authority over the lobster fishery was eventually transferred to the ASMFC in 1999, by which point seven different lobster conservation areas had been identified (Acheson, 2004). Currently each Lobster Conservation Management Area (LCMA) has its own effort reduction needs which are developed by the respective management team. Amendment 3 to the ISFMP set default trap limits for four of the management areas and Addendum 1 set trap limits for the remaining three.

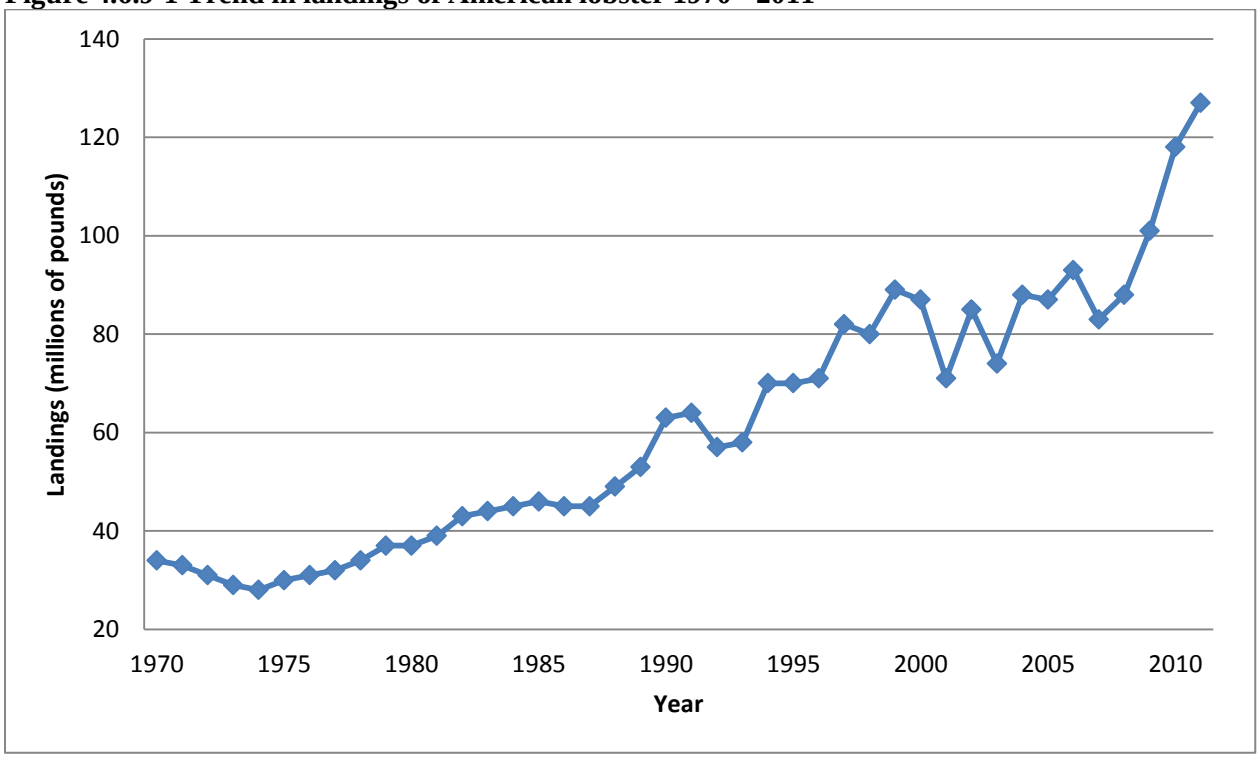
In 1976 there were an estimated 10,356 vessels participating in the inshore trap fishery and 117 vessels participating in the offshore lobster fishery (Acheson, 1997). Since Amendment 3 and the transfer of federal authority to the ASMFC in 1999, vessel operators have had to apply for an area specific trap permit to fish in one of the seven LCMAs. These permits are not mutually exclusive and owners may apply for any permit for an area that they wish to fish. There are also specific permit categories for non-trap and charter/party fishing as well. Typically the area specific trap permits are used by the directed trap fishery while the non-trap permits are used by the much smaller offshore mobile gear fishery or so that vessels using non-trap gear may land incidentally caught lobsters.

The total number of vessels with any type of lobster permit has stayed relatively constant since the change in management in 1999. The states of Maine and Massachusetts are home to the most vessels with a lobster permit, and combined they account for three quarters of permitted vessels (Table 4.6.9-1). There are some notable differences between the states with regard to the type of permits vessels have. Over the last twelve years, 96% - 99% of vessels with a homeport in Maine have had an area specific trap permit as opposed to only 4% - 8% having the non-trap permit. About half the vessels from other states possess a non-trap permit. For example, in 2011, 483 out of 908 vessels with a home port in Massachusetts have a non-trap permit while two thirds have an area specific trap permit.

Table 4.6.9-1 Numbers of vessels by homeport state, lobster permit type and year												
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Total	3233	3253	3297	3217	3357	3353	3394	3288	3213	3175	3139	3116
ME												
Any LO permit	1187	1210	1286	1335	1417	1462	1527	1455	1413	1424	1428	1452
Non-trap	61	51	57	66	106	116	117	113	107	104	97	93
Charter	2	1	1	2	2	2	1	1				
Any area trap	1160	1189	1268	1314	1376	1409	1469	1404	1368	1375	1381	1414
NH												
Any LO permit	89	97	93	95	116	117	118	115	117	109	111	111
Non-trap	40	46	46	49	56	56	61	61	59	56	60	53
Charter	2	1	1	2	2	2	2	2	2	2	2	2
Any area trap	66	74	72	71	91	89	83	83	85	85	83	85
MA												
Any LO permit	1215	1185	1169	1114	1106	1055	1022	1016	986	974	944	908
Non-trap	442	449	466	474	500	498	497	521	520	518	500	483
Charter	5	3	7	7	8	7	6	7	8	8	7	6
Any area trap	892	894	885	814	793	742	716	684	656	635	617	589
RI												
Any LO permit	257	265	256	243	243	240	240	234	228	217	213	209
Non-trap	73	83	82	88	84	91	90	91	89	83	78	75
Charter	1	1	1	1	1	1	1	2	2	2	2	2
Any area trap	212	222	220	198	203	198	198	191	183	177	176	172
CT												
Any LO permit	32	37	37	34	33	30	30	30	30	31	28	27
Non-trap	12	16	17	18	22	21	21	21	21	20	20	19
Charter					2	2	2	2	2	2	4	4
Any area trap	25	31	30	25	24	22	21	22	21	22	22	22
NY												
Any LO permit	162	153	147	127	138	134	141	128	124	124	118	120
Non-trap	90	86	83	87	91	83	90	79	81	80	77	78
Charter	4	3	3	5	7	7	6	5	5	5	2	1
Any area trap	94	91	93	66	82	85	86	79	73	74	71	71
NJ												
Any LO permit	166	180	184	152	184	186	193	192	202	190	194	192
Non-trap	78	95	95	117	122	134	138	136	144	136	138	139
Charter	13	10	10	10	13	12	11	11	11	11	11	11
Any area trap	105	115	118	50	86	82	83	84	91	88	89	82

Although the fishery has existed for almost two centuries, consistent and relievable landing statistics are not available prior to 1950. From about 1957 through 1974, landings from the lobster fishery remained relatively constant at an average of about 30 million pounds per year. Landings of lobster steadily increased from 28 million pounds in 1974 to 64 million pounds in 1991 before declining to 57 million pounds in 1992 (Figure 4.6.9-1). Landings then continued to rise to 89 million pounds in 1999, after which lobster landings would oscillate almost year to year by nearly 15 million pounds from 2000 to 2007. In the most recent years lobster landings have experienced an unprecedented high exceeding 100 million pounds since 2009, and nearly reaching 127 million pounds in 2011.

Figure 4.6.9-1 Trend in landings of American lobster 1970 - 2011



Maine has always been the leading producer of lobsters, but its share of total landings has fluctuated over time. Throughout the 1970s Maine accounted for between 52% and 61% of total lobsters landed from Maine to New Jersey (Table 4.6.9-2). Expansion of lobster landings during the 1980s, particularly in Massachusetts, reduced the share of lobster Maine supplies to less than 50% until the mid 1990s. However, since 2000 the contribution of the Maine lobster fishery to total landings increased steadily to more than 80% of the domestic harvest in 2004 before declining slightly 2005 - 2008. The increasing proportion of Maine landings is due to a combination of increased landings in Maine and declining landings in just about every other state.

Table 4.6.9-2 Annual share or 5-year average annual share of lobster landings by state, 1970–2011							
Year(s)	**ME**	**NH**	**MA**	**RI**	**CT**	**NY**	**NJ**
1970 - 1974	55.1%	1.9%	19.8%	12.8%	1.9%	3.9%	4.5%
1975 - 1979	58.3%	1.6%	24.0%	9.7%	2.0%	1.9%	2.5%
1980 - 1984	52.5%	2.5%	29.3%	8.4%	3.2%	2.5%	1.7%
1985 - 1989	43.7%	2.5%	32.6%	11.1%	3.8%	3.3%	3.0%
1990 - 1994	49.5%	2.7%	25.7%	11.0%	3.9%	5.1%	2.1%
1995 - 1999	55.9%	1.9%	19.3%	7.6%	3.9%	10.4%	0.9%
2000	65.9%	2.0%	18.2%	8.0%	1.6%	3.3%	1.0%
2001	68.2%	2.8%	17.0%	6.2%	1.9%	2.9%	0.8%
2002	74.7%	2.4%	15.1%	4.5%	1.3%	1.7%	0.3%
2003	74.6%	2.7%	15.5%	4.7%	0.9%	1.3%	0.3%
2004	81.1%	0.2%	12.8%	3.5%	0.7%	1.1%	0.4%
2005	78.3%	2.9%	11.3%	4.9%	0.8%	1.3%	0.4%
2006	78.4%	2.9%	11.9%	4.1%	0.9%	1.3%	0.5%
2007	77.3%	3.7%	12.3%	3.9%	0.7%	1.2%	0.8%
2008	79.3%	2.9%	12.0%	3.2%	0.5%	1.4%	0.7%
2009	80.7%	3.0%	11.7%	2.8%	0.5%	1.0%	0.3%
2010	81.7%	3.1%	10.8%	2.5%	0.3%	1.0%	0.6%
2011	83.0%	3.1%	10.6%	2.2%	0.1%	0.5%	0.6%

From 1970 up to the present, the American lobster fishery has been either the most or second most valuable fishery in the Northeast region. Nominal dockside revenue from American lobster has increased steadily from $33 million in 1970 to $314 million in 2000. Since 2000, revenues from lobster have fluctuated but most recently they have exceeded $400 million in 2010 and 2011 (Table 4.6.9-3). As with landings, Maine has consistently had the highest revenues from lobster of any NE state.

Table 4.6.9-3 Lobster revenue (in thousands of dollars) by state and year 2000-2011								
	ME	**NH**	**MA**	**RI**	**CT**	**NJ**	**NY**	**Total**
2000	$187,715	$7,081	$70,128	$28,103	$5,501	$3,694	$11,555	$314,070
2001	$153,982	$8,072	$53,469	$18,747	$5,453	$2,471	$7,357	$249,840
2002	$210,950	$8,164	$56,582	$15,875	$4,226	$1,139	$5,131	$302,200
2003	$205,715	$8,556	$52,373	$16,731	$3,170	$1,028	$4,426	$292,189
2004	$289,079	$925	$51,643	$14,593	$3,166	$1,800	$3,722	$365,186
2005	$317,948	$14,377	$48,793	$23,010	$3,821	$1,999	$4,396	$414,677
2006	$296,855	$13,915	$52,593	$18,408	$4,031	$2,533	$6,289	$394,918
2007	$280,645	$16,410	$51,268	$17,237	$3,222	$4,055	$5,288	$378,456
2008	$245,186	$12,268	$45,426	$12,994	$2,106	$3,215	$5,498	$326,962
2009	$237,379	$11,919	$42,561	$11,201	$1,914	$1,146	$3,932	$310,293
2010	$318,234	$14,835	$50,261	$12,371	$1,757	$2,910	$4,485	$405,058
2011	$334,974	$16,346	$53,334	$12,728	$816	$3,086	$2,533	$424,087

With respect to the influence of events occurring in other fisheries on the lobster fishery; prior to 1994 most fisheries in the Northeast region had been open access. The relative ease with which one could move between fisheries allowed vessel owners and operators participating in the lobster fishery to pursue other fisheries without having to qualify for any specific permit. At the same time, landings in the lobster

fishery were increasing rapidly during the 1980s and early 1990s, drawing in additional effort that had previously been engaged in other fisheries. Once limited entry was introduced in the groundfish and scallop fisheries in 1994 many part-time lobster participants were excluded from those permit allocations as they failed to have the necessary landings to qualify. Because of resource depletion and the increasingly stringent regulations found in other fisheries, there has been a contraction of the lobster fishing industry that has increased dependence on lobster fishing (Thunberg, 2007). In the groundfish fishery there maybe contraction as well; lobster landings made by vessels in the groundfish fishery decreased by 1.4 million pounds between the first two years of sector management.

5.0 IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

What's in Section 5?

- Section 5.1 discusses the direct and indirect impacts of each alternative
- Section 5.2 discusses the cumulative impacts of the proposed action in combination with other past, present and reasonably foreseeable future actions.

Prior to the implementation of sectors, input controls affected the amount of fish that could be caught on a multispecies trip. Specifically, NMFS used binding limits on the total number of days at sea (DAS) each fisherman could fish, along with trip limits for certain species, to control fishing mortality for groundfish stocks. Fishermen were allocated a portion of the target allowable fishing mortality for each species by receiving a specific number of DAS. These fishermen were also prohibited from using certain fishing gear in an effort to further reduce catch per day.

The advent of sectors has not changed that overall process for non-sector fishermen. Common pool fishermen would still be assigned DAS based on a total allowable fishing mortality. However, rather than being assigned DAS, sectors are allocated an Annual Catch Entitlement (ACE) for the majority of the groundfish stocks. An approved sector operations plan provides the sector with more flexibility as to when and how sector members fish for those stocks. Sector fishermen should have increased flexibility with respect to when and how they fish relative to common pool members. This would likely motivate them to fish in a manner that increases their catch per unit of effort. Therefore, the total sector geardays over a year would likely be less than geardays under the common pool.

Northeast Multispecies fishermen target and/or catch several species. Since each species has its own ACE, sectors need to coordinate their fishing to ensure that the sector does not reach its ACE for a single stock well before it reaches its ACE for the other allocated stocks. This coordinated effort could result in:

1. increased harvest levels for previously under-exploited stocks
2. changes in the amount of gear fished by sector fishermen over the course of a year, and
3. increased gear selectivity and efficiency.

In summary, catch per unit of effort (CPUE) should increase with the increased flexibility granted to sectors through an approved operations plan. This would tend to decrease the number of days with gear in the water (geardays, i.e., our proxy for CPUE, see Section 4.1 for a description of how a gearday is calculated). However, geardays might increase if the ability to target specific stocks allows sectors to more fully exploit previously under-exploited stocks.

Section 5.1 further evaluates potential impacts to the physical environment and habitat, as well as physical resources, allocated target species, non-allocated target species and bycatch, protected resources, and human communities. Section 5.2 discusses cumulative impacts of the Proposed Action in combination with other past, present, and reasonably foreseeable actions.

5.1 IMPACT ASSESSMENT

Section 5.1 reviews the alternatives that are the subject of this evaluation, establishes criteria for evaluating the impact of each alternative on the VECs identified in Section 4, and discusses impacts.

5.1.1 Alternatives Assessed

This section identifies impacts associated with the operations plan requirements (Alternative 1) and the proposed sector-specific exemptions for FY 2013 (Alternative 2), as well as a No Action Alternative for each.

5.1.1.1 Sector Operations Plans (Alternative 1)

Amendment 16 identified the requirements of any proposed sector operations plan. These requirements include quota management, monitoring, administrative, and gear restriction measures. NMFS must review and approve any sector operations plan prior to implementation. The potential environmental impacts that may occur as a result from the approval of a sector operations plan are primarily limited by three aspects of the plan. These requirements include the identification of ACE thresholds based on the permit history of sector participants, as well as ACE allocation and discard monitoring.

Section 1.1.1 details the components of each sector's operations plan. Copies of all operations plans can be found at http://www.regulations.gov. Alternative 1 is the approval of the FY 2013 sector operations plans and harvest rules. If NMFS approves Alternative 1, additional exemptions discussed in Alternative 2 (sector operations plans exemptions) may be individually approved or disapproved.

5.1.1.2 Sector Specific Exemptions for Multispecies Sectors (Alternative 2)

Sectors who submit operations plans for approval may request exemptions to regulations that implement the Northeast Multispecies FMP. The intent is to increase harvest efficiency while minimizing the potential for adverse environmental impacts.

As described in Section 3.2, all exemptions desired for FY 2013 (including those approved in prior FYs) must be requested in FY 2013 operations plans. Exemptions will only be granted to those sectors that specifically requested them. For the purposes of this EA, NMFS evaluated impacts as if the exemption would be granted to all sectors because any sector may request any exemption that has been granted. Consequently, this analysis considers the highest potential impact.

The sector-specific exemptions are identified in Section 3.2. Alternative 2 for FY 2013 is the approval of sector operations plan exemptions either individually or as a group. The decision regarding Alternative 2 is contingent upon the approval of Alternative 1 (sector operations plans).

5.1.1.3 Potentially Impacted Valued Ecosystem Components (VECs)

This analysis considers impacts to 5 VECs:

Physical Environment/Habitat/EFH: For the purpose of this analysis the physical environment VEC consists of EFH in the Gulf of Maine, Georges Bank, the southern New England/Mid-Atlantic areas, and the continental shelf/slope sub-regions. The Sustainable Fisheries Act defines EFH as "[t]hose waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Section 4.2 describes the conditions of the physical environment.

Target species: For the purpose of this analysis, the target species VEC includes 14 allocated target groundfish stocks managed under the Northeast Multispecies FMP including (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). Section 4.3 describes the current condition of each stock.

Non-allocated target species and bycatch: For the purposes of this analysis, the non-allocated target and bycatch VEC follows the convention established in the Amendment 16 EIS, and includes spiny dogfish, skates, and monkfish. These species were the top three non-groundfish species landed by multispecies vessels in FY 2006 and FY 2007 under the Category B (regular) DAS program (see Table 87 of the Final EIS for Amendment 16). This action also includes American lobster under the non-allocated target species and bycatch VEC due the consideration of exemptions related to closed areas. Section 4.4 describes the current condition of these stocks.

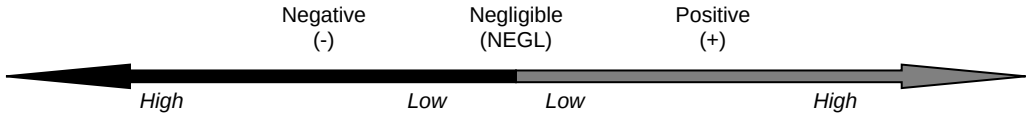
Protected resources: This VEC includes species under NMFS' jurisdiction which are afforded protection under the Endangered Species Act (ESA) (i.e., for those designated as threatened or endangered) and/or the Marine Mammal Protection Act (MMPA). Table 4.5.1-1 lists the 14 marine mammal, sea turtle, and fish species that are classified as endangered or threatened under the ESA. The remaining species in Table 4.4.1-1 are protected by the MMPA and are known to interact with the Northeast Multispecies fishery. Section 4.5 describes the current condition of these protected resources.

Human communities: This VEC includes impacts to people's way of life, traditions, and communities. These social and economic impacts may be driven by changes in fishery flexibility, opportunity, stability, certainty, safety, and other factors. Impacts would most likely be experienced across communities, gear cohorts, and vessel size classes. Section 4.6 describes the current conditions in the potentially impacted communities.

5.1.2 Evaluation Criteria

This EA evaluates the potential impacts using the criteria outlined in Table 5.1.2-1. Impacts from all alternatives are judged relative to the baseline conditions, as described in Section 4, and compared to each other.

Table 5.1.2-1 (Key to Table 5.1.6-1)			
Impact Definition			
	Direction		
VEC	**Positive (+)**	**Negative (-)**	**Negligible (Negl)**
Allocated target species, other landed species, and protected resources	Actions that increase stock/population size	Actions that decrease stock/population size	Actions that have little or no positive or negative impacts to stocks/populations
Physical Environment/ Habitat/EFH	Actions that improve the quality or reduce disturbance of habitat	Actions that degrade the quality or increase disturbance of habitat	Actions that have no positive or negative impact on habitat quality
Human Communities	Actions that increase revenue and social well-being of fishermen and/or associated businesses	Actions that decrease revenue and social well-being of fishermen and/or associated businesses	Actions that have no positive or negative impact on revenue and social well-being of fishermen and/or associated businesses
Impact Qualifiers:			
Low (L, as in low positive or low negative)	To a lesser degree		
High (H; as in high positive or high negative)	To a substantial degree		
Likely	Some degree of uncertainty associated with the impact		



Impact of Increased Operation Flexibility on Human Communities

As cited in the discussion of impacts within this section, increased "operational flexibility" generally has positive impacts on human communities as sectors and their associated exemptions grant fishermen some measure of increased "operational flexibility." By removing the limitations on vessel effort (amount of gear used, number of days declared out of fishery, trip limits and area closures) sectors help create a more simplified regulatory environment. This simplified regulatory environment grants fishers greater control over how, when, and where they fish, without working under increasingly complex fishing regulations with higher risk of inadvertently violating one of the many regulations. The increased control granted by the sectors and their associated exemptions may also allow fishermen to maximize the ex-vessel price of landings by timing them based on the market.

There is the added benefit to human communities from the removal of regulatory constraints on effort as removing these limits can reduce frustration. Typical effort control management serves to constrain fishing ability but it has little impact on controlling expectations. As a result, the level of frustration rises with the inability to meet expectations (Smith, 1980). Under sector management expectations are controlled by the level of ACE granted each sector, but the ability to fish is still constrained by the management tools of the previous system. Each exemption that removes the management control on effort will allow fishing ability to rise to expectations and reduce frustration.

5.1.3 Impacts of Sector Operations Plans (Alternative 1)

Each sector's operations plan is unique. However, as discussed in Section 1.0, NMFS saw general uniformity in the operations plans for prior fishing years, and it anticipates this uniformity to continue. Therefore, this single EA incorporates all 17 sector operations plans for FY 2013.

The harvest rules for all sector operations plans tend to fall into one of four broad categories: quota management, monitoring, administrative, and gear restriction.

Quota Management: Harvest rules in this category are largely administrative actions taken to ensure the sector does not exceed its ACE. These rules may afford sector participants the flexibility to increase CPUE by timing fishing efforts. However, they are not expected to materially affect the mix of gear used by fishermen, the number of geardays, or fisheries related mortality.

Monitoring: Harvest rules in this category generally relate to data collection and reporting. These activities ensure that a sector does not exceed its ACE. They may also provide data to improve fisheries management. These harvest rules provide a better understanding of discard rates and may ultimately reduce under-fishing of some stocks. However, they are not expected to materially affect the mix of gear used by fishermen, CPUE, the number of geardays fished, or fisheries related mortality.

Administrative: Harvest rules in this category are strictly administrative issues such as compliance with sector rules and delineation of sector manager responsibilities. These harvest rules generally shift the burden of reporting from individual sector members to the sector manager. However, they are not expected to materially affect the mix of gear used by fishermen, CPUE, the number of geardays fished, or fisheries related mortality.

Gear Restriction: These restrictions would have little impact on landings. The restrictions ensure operations do not result in new negative impacts to habitats or protected resources. They also ensure that gear used by the sectors is generally similar to the gear used by the common pool.

NMFS analyzed and approved the universal exemptions under Amendment 16. Therefore, they are not subject for approval in this action. NMFS approved the universal exemptions in Amendment 16 because they are effort controls that are no longer necessary to control fishing mortality resulting from sector operations. Therefore, they are not anticipated to impact allocated target or non-allocated target species since approved sector catch is managed by an ACE – a hard mortality control. Given that all sectors were expected to apply for them, this process simplified the annual sector approval process. The following summarizes the likely impacts from the universal exemptions, provided NMFS approves the sector operations plans under Alternative 1. The Amendment 16 FEIS and final rule provide further discussion concerning the impacts of approving these universal exemptions.

No Days-At-Sea Needed when Groundfishing: Northeast Multispecies DAS accounting controls groundfish mortality by limiting fishing effort to a set number of days per groundfish vessel. Approved sectors have an ACE which serves as a hard mortality control and identifies the amount of fish that may be caught. Therefore, it is no longer necessary to apply DAS rules to this group of fishermen to control groundfish mortality. NMFS expects that operating under this universal exemption would allow vessels to successfully target select species. This would likely result in an increase in overall fishing time, as compared to the amount of time permitted under the DAS program for common pool vessels. Successful targeting of stocks with greater ACE (e.g., GB haddock) would allow sector vessels to spend more time fishing for more abundant stocks whose catch was artificially constrained by DAS allocations designed to reduce effort on stocks that are overfished and/or experiencing overfishing (e.g., SNE/MA winter flounder). A control on mortality (sector ACE), instead of a cap on DAS, may increase geardays for sector members, which could lead to more bottom contact time and more impacts to the physical habitat compared to the common pool. Mortality controls on allocated and non-allocated target species are not affected by this universal exemption. However, any potential increase in geardays, as a result of controlling mortality through a sector ACE would potentially result in an increased number of interactions between protected resources and deployed gear compared to the common pool, where geardays are set by

the DAS regulations. Available data comparing geardays for FY 2011 against FY 2009 for sector vessels generally show geardays rising in aggregate; however, there is tremendous variability within the different gear types. The gears that are primarily used in the NE multispecies fishery (gillnet and trawl) have seen slightly increased geardays. The increased flexibility afforded by this universal exemption is likely to increase revenues, allow fishermen to more fully exploit previously under-exploited stocks, and reduce incentive to fish in unsafe conditions.

No Trip Limits: Trip limits are designed to limit the number of fish caught per trip. Trip limits on allocated target species may result in regulatory discards of fish that exceed relevant daily trip limits. Operating under a universal exemption from this restriction may result in less discards from sector operations, and increased landings and efficiency when combined with the overall mortality controls (sector ACEs). Similar to the no DAS universal exemption above, this may result in increased geardays as compared to the common pool, which may lead to more impacts to the physical environment, and lead to more interactions with protected resources. When common pool fishermen reach a trip limit for a certain species, they are obligated to discard any additional, marketable catch of that stock from that trip in order to comply with trip limits. This is referred to as "regulatory discard." Since sector members' catch would be regulated by the sector's ACE, trip limits are not needed as an effort control on mortality. Regulatory discard of allocated target and non-target species may be eliminated resulting in a higher proportion of the catch being retained compared to the common pool. This universal exemption allows sector participants the flexibility to extend fishing efforts to realize a higher return on those efforts during high harvest periods. This increased flexibility is likely to increase revenues, allow fishermen to more fully exploit previously under-exploited stocks, and reduce incentive to fish in unsafe conditions.

Seasonal Closed Area on Georges Bank in May: This restriction sought to reduce fishing mortality on GB stocks, particularly GB cod. The closure has also served to reduce fishing activity on cod spawning aggregations. This universal exemption allows fishing on Georges Bank during a month that may have a higher abundance of fish. Sector operations under this exemption should not increase overall bottom contact time. Geardays on Georges Bank will not likely increase since sector ACEs constrain overall mortality. Previously, many vessels chose to begin their required 20-day block out of the fishery at this time. Under this universal exemption, the time out of the fishery could be taken during another time period, but would still need to be taken (unless specifically exempted). As stated, approved sectors ACEs would limit mortality of allocated target stocks. Therefore, mortality of GB stocks would be limited regardless of the exemption. Vessels not actively fishing for allocated target stocks are still allowed on Georges Bank in May to fish for other fisheries, including non-allocated target species. Therefore, the disturbance to cod spawning aggregations is not completely avoided when compared to the common pool. This universal exemption should increase efficiency and vessel profits.

Gulf of Maine Rolling Closures: This universal exemption would allow fishing within areas that are otherwise closed to groundfishermen during specific time periods. Sector vessels are exempted from all rolling closures except for: Blocks 124 and 125 in April; Blocks 132 and 133 in April-May; Block 138 in May; Blocks 139 and 140 in May-June; and Blocks 145, 146,147, and 152 in June. GOM rolling closures were primarily adopted to reduce catches of allocated target species, particularly GOM cod. However, these closures have also served to reduce fishing activity on cod spawning aggregations. Sector fishing activities in these areas could result in increased catch of or disturbance to spawning fish. This universal exemption could also result in sector vessels targeting more allocated target species in areas where past fishing effort focused on other fisheries. Vessels not actively targeting groundfish, but fishing for other species, are currently allowed in the GOM closure areas in May. Therefore, the GOM rolling closures do not completely avoid disturbance to cod spawning aggregations. This exemption should not increase overall bottom contact time since overall fishing effort is confined by sector ACLs, and effort would likely shift to other areas without this exemption. In addition, these areas do not include any habitat area of particular concern. Increased access to the GOM fishing grounds during spring and fall should increase CPUE and may allow vessels to more fully exploit previously under-exploited stocks. It also provides sector vessels access during a time when few grounds are open leading to increased opportunities. This would in turn lead to increased vessel profits likely resulting in a positive effect on both human communities. However, if the threshold of harbor porpoise take is exceeded, closures may be triggered for all sink gillnet vessels (i.e., groundfish and non-groundfish alike).

Six-inch Cod-end Exemption on Georges Bank if using Haddock Separator or Ruhle Trawl: This exemption allows the use of a six-inch mesh cod-end when sector vessels fish with selective trawl gear (haddock separator or Ruhle trawl). This facilitates selective fishing for haddock by sector vessels because both the separator and Ruhle trawls increase the proportion of haddock caught compared to cod. Sector operations under this exemption should substantially change mortality since the catch would be controlled by sector ACE. This exemption may increase harvest of sub-legal size fish. However, this is less likely to affect species that swim closest to the bottom (e.g., cod) because of the net's design. Although, it is possible that increased retention of sub-legal catch may cause shifts in stock composition. Since these modified trawls have less contact with the seafloor, sector operations under this exemption should not affect habitat, as gear contact time with the seafloor would not increase as a result of these trawls. The minor reduction in mesh size should not alter the expected rate of protected resources entanglement. The use of this exemption by sector vessels would increase profit margins by allowing fishermen to more fully exploit previously under-exploited stocks.

Sector operations plans (Alternative 1) would generally have a negligible impact on the physical environment and protected resources as they are not the primary driver of effort in the fishery. The amount of fish allocated to the commercial groundfish fishery, and sectors in the form of an ACE, as set in the annual specifications, likely provides for the greatest influence on trips, catch, and geardays. Additionally, sector operations plans are intended to ensure that operations do not result in new negative impacts to the physical environment and/or protected resources. The operational flexibility afforded to sectors (i.e., exemptions to increase fishing opportunities) may allow for an increase in geardays from targeting under-exploited stocks. However, the analyses in this document are made assuming the entire ACE could be harvested. In other words, an increase in catch from the previous year, as long as it does not exceed the ACE, should not create an unanticipated impact. It is also possible that increased efficiency resulting from sector exemptions could also act to increase catch per unit effort and reduce days fished.

Data (see Table 4.1.5-2) from FY 2009 through FY 2011 (trips targeting groundfish or using a groundfish or monkfish DAS), broken out by gear type, show a major reduction in trips (aside from longline), and catch (aside from trawl), while geardays have increased for gillnet and slightly for trawl vessels. While this is inconsistent with data from the previous year (where gear days decreased along with catch), an increase in geardays could indicate that it is becoming harder to find stocks, and therefore, vessels are having to fish harder, or longer. As discussed in the FY 2012 EA, and in this document, the approval of sector exemptions in the past may have contributed to greater efficiencies that allow for increased exploitation of ACE, and non-allocated stocks. This may account for the increase in geardays in the gillnet fishery. As discussed under the exemption impact discussion, any increase in the use of trawl gear is a negative for benthic habitat (see Sec 4.2.4), and an increase in gillnet gear is a negative for protected resources. However, as seen in Table 4.5.4-3, there does not seem to be a substantial increase in take in marine mammals as reported in the observer dataset. The majority of the harvest rules are not expected to affect the landings of non-allocated target species and bycatch, therefore impacts to this VEC would be negligible. Since sector vessels would likely convert vessel catch into more landing and less discard while not exceeding ACEs, impacts to allocated target species as a result of Alternative 1 would be expected to be negligible. As sectors may lease their stock-specific ACE to any approved sector, and since common pool members may join an active sector up until March 29, 2013, this EA assumes that 100 percent of the ACL allocated by FW 48 to the NE multispecies FMP may be fished by any individual sector with an approved operations plan.

The harvest rules would allow participants the flexibility to time fishing efforts to correspond with optimal market and or environmental conditions while not exceeding ACE. This increased flexibility is likely to increase revenues, allow fishermen to more fully exploit previously under-exploited stocks, and reduce incentive to fish in unsafe conditions. As such, impacts to human communities would be positive.

There are a few special provisions that some sectors have included in their operations plan that NMFS believes may result in impacts beyond those discussed generally for all sectors. These provisions are evaluated below.

Two sectors have requested approval to continue fishing operations despite having used its entire ACE for at least one allocated stock. Normally, sectors are prohibited from fishing in a stock's area when its ACE for that stock is caught or exceeded. However, the regulations implementing the multispecies FMP provides a sector the opportunity to continue fishing if it can explain, in its annual operations plans how groundfish will be avoided while participating in a fishery that can result in groundfish being caught" when it does not have any ACE for an allocated stock." This operations plan requirement is only necessary if a sector intends to continue fishing without ACE. This provision is intended to allow a sector vessel to continue fishing operations, despite having no ACE for at least one stock, because data show that the sector could fish without catching more than a *de minimus* amount of any of the limited ACE.

Compared to the No Action alternative in which no fishing would occur if a sector is out of ACE, the proposed provision could increase gear days. Therefore, this provision would likely have low negative impacts on protected resources, and physical environment/habitat/EFH. For non-target species, if this provision allows non-allocated stocks to be targeted, it is conceivable that catch would rise. However, catch of many non-allocated stocks is regulated by mortality controls, and this provision would not exempt vessels from these controls. However, bycatch may increase as a result of an increase in gear days. Therefore, we expect a negligible impact to non-target species and bycatch. The impact to allocated target species is likely to be negligible. If a sector vessel did catch a *de minimus* amount (up to 100 pounds) of a stock for which it had zero ACE, it would have to lease in an amount of fish to cover the temporary overage. Additionally, once a sector reaches the de minimis threshold of 100 pounds, the sector may transfer in additional ACE and resume normal fishing activity, but may not attempt to fish under this provision for the remainder of this fishing year. Thereby this provision would result in negligible impacts to allocated target species from a *de minimus* overage. Because this exemption would require 100 percent observer or at-sea monitoring coverage and NMFS has limited funding to pay for observer and at-sea monitoring coverage, NMFS is proposing that industry fund 100% of the at-sea monitoring expenses when a vessel utilizes this exemption. Vessels interested in utilizing this exemption will not have the opportunity to request a federally-funded observer or at-sea monitor. This would ensure accurate catch and discard information. Impacts to human communities would be low positive as sector vessels would be provided with additional operational flexibility and could potential land a greater proportion of their ACE and other non-target stocks, such as monkfish, dogfish, and skates; however, the extent to which these two sectors may benefit from this provision is currently unknown. Further, the requirement for industry funding of 100 percent observer coverage would be a low negative impact, as it is an added cost to industry. It is estimated that vessels would have to pay around $500 dollars/day to cover at-sea monitoring expenses. These include the wage for the monitor while on board and any overhead costs incurred by company providing at-sea monitoring services. NMFS has little data to accurately predict the number of trips that may be taken subject to this provision, and as such, it is impossible to quantify the added burden to industry as a result of this requirement. Overall, impacts to human communities are thought to be low positive, as sectors would not likely take these trips otherwise.

Most sectors have also included a provision in their operations plans that prohibits a sector vessel from fishing outside of Broad Stock Area 1 (the entire Gulf of Maine) if it fishes west of 70° 15'W. This provision, referred to as the "Inshore Gulf of Maine Declaration" requires sector vessels to declare their intention to fish "inshore" or "offshore" prior to departure. Vessels declaring an "inshore" trip can fish anywhere in Broad Stock Area 1. Vessels declaring an "offshore" trip can fish anywhere in the Gulf of Maine, Georges Bank, or south, except for inshore Gulf of Maine west of 70° 15'W. Vessels with an observer or at-sea monitor on board would be permitted to fish in any and all of the Broad Stock Areas on a single trip. This provision was developed by several sectors to help managers better identify where vessels are fishing. It will allow for better identification of catch as vessels fishing inshore Gulf of Maine are unable to fish in a different stock area. For example, Gulf of Maine cod caught inshore cannot be mis-reported as Georges Bank cod. This provision would not apply to a vessel with an observer or at-sea monitor on board because the observer records catch location.

Data from FY 2011 indicates that very few trips included active fishing outside of Broad Stock Area 1 (the entire Gulf of Maine) and west of 70° 15'W on the same trip. VMS data indicates that 29 trips did this from May 1, 2010 through November 2012. While VTR records for some of these trips could not be

linked to specific trips, for those trips where VTR data could be matched, the results indicated that these trips caught 72,667 lb of GOM Cod, and 46,640 lb of cod from outside of the GOM.

Therefore, since this provision is not expected to substantially change fishing behavior, impacts to the physical environment/habitat/EFH and protected resources are likely to be negligible. This provision would have low positive impacts on allocated target species and non-target species as it would result in improved data on these species. Impacts on human communities would likely be negligible. There is the potential for a decrease in flexibility for some vessels that would fish on Georges Bank and then the Gulf of Maine on the same trip. However, the analysis indicates that this would affect very few vessels. Further, since this program is voluntary and vessels could still fish in the Gulf of Maine, impacts are considered negligible.

Amendment 17 to the Northeast Multispecies FMP allows for NOAA-sponsored state-operated permit banks to lease ACE without first becoming or joining sectors Several State permit banks have existing MOAs with NMFS, and have the following generally positive impacts human communities: secure continued access to fishery resources for fishermen regardless of their groundfish fishing history; create and protect sustainable local fisheries; and mitigate the effects of fishing effort consolidation on small-scale fishermen.

As described in the analysis conducted for the authorization of state-operated permit bank sectors under FW Adjustment 45, there exists the potential that state permit banks may affect the market price associated with the vessels/permits for purchase, and DAS and sector ACE available to lease. Currently, the entire funding state permit banks have or would use to purchase permits was received through Federal grants. It could be argued that state permit banks are not as driven by the need to assure a particular return on investment when compared to a private fishing business whose capital to purchase permits is derived from commercial loans. Thus, state permit banks may be able to afford to offer higher prices for available permits than private commercial entities. As a result, the price for purchasing a vessel/permit may be inflated by the development of these state permit banks. Furthermore, state permit banks could offer DAS and sector ACE on the leasing market for comparably cheaper prices than a private commercial entity. In fact, state permit banks were created to provide assistance to smaller fishing vessels and communities. Permit holders who are not able to lease DAS or ACE from state permit banks could see reduced access to further fishing opportunities as a result of state permit banks. However, the distribution of such impacts would vary based on the communities and sectors eligible to receive DAS or sector ACE from the permit banks based upon the conditions specified in the MOAs. Further, the scale of the impact of such an effect on the market price for permits may be mitigated by the availability of permits with larger landings histories or DAS allocations. If permits with larger landings histories or DAS allocations are not available, as suggested in the analysis of FW 45, purchasing additional permits or leasing additional DAS or sector ACE could only marginally increase future fishing opportunities.

Although the state-operated permit banks have the potential to affect market prices for permits, DAS, and sector ACE, and, therefore, the costs of permit acquisition or leasing DAS and sector ACE, the positive social benefits that would result from the ability of these banks to acquire and lease ACE to other sectors would likely outweigh these potential market impacts. Furthermore, any market impacts from state permit banks purchasing permits are likely to be short term. The ability of these banks to lease ACE would achieve several social objectives identified in the FMP, including minimizing the adverse impacts on fishing communities and shoreside infrastructure and maintaining a diverse groundfish fishery. Additionally, the state permit banks would increase DAS and sector ACE available to smaller sector vessels operating out of smaller communities. Thus, the operation of the state-operated permit banks would help minimize adverse impacts on such communities and allow for their sustained participation in the groundfish fishery, and overall the ability of sectors to acquire ACE from permit banks would result in positive impacts to human communities.

If the No Action Alternative is selected for Alternative 1, sectors would not have approved operations plans. Therefore, vessels participating in the Northeast Multispecies fishery would return, or remain in, the common pool where they would fish under DAS regulation. The No Action Alternative would

subject these vessels to the input control measures, implemented by Amendment 13, subsequent framework adjustments, and Amendment 16. Relative to the approval of Alternative 1, the change in impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protected resources would be negligible. Since groundfish fishermen would not benefit from the increase operational flexibility expected under sector management selecting the No Action Alternative for Alternative 1 would represent negative impacts on human communities. Additionally, if NMFS does not approve operations under Alternative 1, there would be minimal impact from the ability of a NOAA-sponsored, state-operated permit bank to acquire or lease ACE, as they would have no ability to fish this ACE per the MOA or to lease ACE to sectors.

5.1.4 Impacts of Sector Operations Plans Exemptions (Alternative 2)

Section 5.1.5 describes the impacts of approving exemptions requested by FY 2013 sectors. This EA evaluates the impacts of each exemption individually and NMFS may approve or disapprove them individually or as a group. Section 3.2 provides additional detail on the regulatory history leading up to each exemption request. While the impacts associated with the implementation of each of the exemptions in this EA are analyzed as if each exemption would be implemented for all sectors, each exemption will only be implemented for those sectors which request them. Please refer to Table 3.2.2-1 for a detailed list of which sectors have requested which exemptions for approval under the Proposed Action.

1. *120 Day Block Out of the Fishery Requirement for Day Gillnet Vessels*

Under existing regulations, gillnet vessels must take a total of 120 days out of the gillnet fishery during the fishing year. Each period of time taken must be a minimum of 7 consecutive days. At least 21 days must be taken between June 1st and September 30th of each fishing year. A required 20-day spawning season time out period is also credited toward the 120 days out of the gillnet fishery. The block out requirements were implemented as a means of controlling mortality and to reduce the possibility that gillnet vessels could compensate for other effort reduction measures by extending soak time between trips. The requirement to take time out during the summer months sought to apply the time out requirement when seasonal gillnet activity is highest.

Because sector members would operate under an ACE, an exemption would increase the operational flexibility of sector vessels while maintaining the mortality control rationale for the measure. The increased flexibility could result in effort being distributed more evenly throughout the year and may increase the CPUE and thereby decrease fishing time and bottom contact for the fishing gear. Since sector gillnet vessels would operate under an ACE, a minor increase in CPUE would generally result in fewer geardays. However, the ability to target specific stocks may result in an increase in geardays. Therefore, this assessment conservatively assumes that this exemption would result in a minor increase in geardays as sector gillnet vessels would have the ability to fish during an additional 120 days if ACE were not attained.

Impacts to the physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch are likely to be negligible. It is likely that the impacts to the physical environment/habitat/EFH would be negligible despite a possible increase in geardays because gillnets have a low impact on habitat. Negligible impacts to allocated target species would occur because harvest is controlled by ACE and potential impacts to spawning aggregations are limited by other existing regulations (e.g. rolling closure areas) and by lowering quality and price of spawning fish that provide a disincentive to target spawning aggregations. Likewise, assuming a relatively constant ratio of non-allocated target species and bycatch to allocated target stocks, there would be negligible impacts as ACE would limit the potential for impacts to non-allocated target species and bycatch. Additionally, non-allocated species such as monkfish, dogfish, and skates have management measures in place to limit the catch of these species and control mortality regardless of the time of year.

The ability for sector vessels requesting an exemption from gillnet limits to fish up to 150 nets total in each RMA is consistent with the monkfish FMP. Monkfish mortality is also limited by DAS and trip

limits. Fishing effort on skates is further restricted by trip limits. Landing dogfish does not require the use of a DAS, but sector vessels would still be restricted by landings limits and quotas.

An increase in gillnet geardays could increase interactions with protected resources. While participants would be required to adhere to all applicable gillnet gear restrictions, the exemption would have a low negative impact on protected resources due to the potential for increased geardays. In contrast, increasing operational flexibility, while maintaining the mortality control rationale for the measure would, increase the expected profit margins of sector fishermen. This would represent a low positive impact on human communities.

Under the No Action Alternative for this exemption, Day gillnet vessels belonging to sectors would still have to declare 120 days out of the fishery. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch would likely be negligible. Impacts to protected resources would be low positive and impacts to human communities would be low negative.

2. *20-Day Spawning Block*

All Northeast groundfish vessels are required to take 20 days out of the fishery between March 1 and May 31 of each year. The 20-day block out rule was imposed as a mortality-control measure and with associated benefits to provide protection for spawning aggregations.

Sectors have requested that they be exempted from the 20-day spawning block. This would allow effort to shift to the spring when CPUE may be increased. Since sector members would operate under an ACE, a minor increase in CPUE could result in fewer geardays. However, the ability to target specific stocks may also result in an increase in geardays; because the exemption is limited to 20 days, it is likely that any potential increase in geardays would be minor.

The following table illustrates the number of trips taken between March 1 and May 31, 2011, by sector vessels that declared a 20 day spawning block in FY 2009 but were exempt from the requirement in FY 2010 or FY 2011. Vessels that do not declare a 20-day spawning block through the IVR system are not allowed to fish between May 12 and May 31. Since these vessels could not be identified, this analysis does not include vessels that did not call in a 20 day spawning block.

Table 5.1.5-1

Trips and Catch for Vessels with at Least 1 Block Declaration by Year and Gear. Vessel had Sector Membership in FY 2010, or 2011. Trips were taken between March 1 and May 30, 2009-2011.

Gear	Fishing Year	Trips	Catch (lbs)
Gillnet	2009	278	1,049,318
	2010	1,535	4,565,721
	2011	884	2,582,725
Longline	2009	45	263,882
	2010	130	382,511
	2011	168	387,307
Pot/Traps	2009	11	6,250
	2010	14	49,150
	2011	7	9,150
Trawl	2009	762	5,541,149
	2010	3,359	29,156,684
	2011	2,488	28,428,499

It is clear that vessels used this exemption during FY 2011. The above data show that trips and catch were substantially higher during the exemption time period in FY 2010 and FY 2011 compared to FY 2009. Additionally, NMFS analyzed spawning block declaration patterns for this same set of sector vessels and found that approximately 473 vessels used the exemption in FY 2011. The number of vessels declaring the spawning block also declined from 487 in FY 2009, to 402 in FY 2010 and 15 vessels in FY 2011.

Exempting vessels from the 20-day spawning block may increase disturbance to or harvest of actively spawning groundfish and/or disrupt spawning behavior. This would have a proportionally greater effect on stock production than harvest of non-spawning fish. However, the lower quality and lower price of spawning fish creates a disincentive for vessels to target them. An exemption from this restriction would not necessarily directly result in increased effort in the Gulf of Maine on spawning stocks, as vessels could fish on Georges Bank or southern New England instead. Furthermore, exempt vessels would still be subject to the GOM Rolling Closure Areas, which are specifically designed to protect spawning aggregations.

Impacts to the physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch are likely to be negligible. Physical environment/habitat/EFH impacts would likely be negligible because any potential increase in geardays would be minor. While this exemption may increase fishing effort at a time and in areas where fish are aggregating to spawn, the ACE for each allocated target stock predominantly controls the potential impact of this exemption. Once a sector reaches its ACE for any allocated target stock, sector members must stop fishing in that stock area with any gear capable of catching groundfish unless additional ACE is obtained. In addition, exempt vessels would still be subject to the GOM Rolling Closure Areas, which are specifically designed to protect spawning aggregations as well as market pressures which may reduce incentives to target spawning stocks. Based on the assumption of a relatively constant ratio of non-allocated target species and bycatch to allocated target stocks, ACEs would also function as a dominant control to limit impacts to non-allocated target species and bycatch.

While any potential change in geardays would be minor, protected resources may be more prevalent in areas of high fish abundance and even minor increases in geardays could result in increased interactions which would result in a low negative impact on protected resources. In contrast, by increasing operational flexibility while generally maintaining the mortality control rationale, for the measure the exemption would increase the expected profit margins of sector fishermen. This would represent a low positive impact on human communities.

Under the No Action Alternative for this exemption, vessels belonging to sectors would still have to declare 20 days out of the fishery between March 1 and May 31. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch would likely be negligible. Impacts to protected resources would be low positive and impacts to human communities would be low negative.

3. *Limitation on the Number of Gillnets for Day Gillnet Vessels*

Current regulations restrict Day gillnet vessels from fishing more than: 100 gillnets (of which no more than 50 can be roundfish gillnets) in the GOM RMA; 50 gillnets in the GB RMA; and 75 gillnets in the SNE/MA RMAs. The existing gillnet limit was implemented to reduce fishing effort and fishing mortality. It also had the effect of reducing the potential that gear would be left unattended to "hold" fishing ground.

Sectors have requested an exemption to increase the limit on the number of gillnets imposed on the Day gillnet category to 150 nets per permit in all RMAs. While sector members would operate under an ACE, the proposed exemption could result in longer soak times because it may take more time to retrieve and process the nets. In turn, this could decrease CPUE as longer soaks could result in undocumented groundfish mortality due to losses such as predation and net drop-out. Because fish that drop out or are

entirely consumed by predators would not be counted against ACE, the decrease in CPUE could result in an increase in geardays and increased fishery mortality. This potential is mitigated because untended gillnets can lead to loss of nets, providing an incentive for fishermen to haul nets more frequently. Data indicate that in FY 2010 and FY 2011 vessels that were eligible to use this exemption did use it. Geardays rose for vessels in GOM who used more than 100 nets, and in Southern New England that used more than 75 nets. Geardays decreased on GB from FY 2009 to FY 2010 and FY 2011. In the MA RMA, where there are very few sector gillnet trips, geardays slightly decreased in FY 2010 and FY 2011 over FY 2009.

Table 5.1.5-2

Geardays While Fishing Under the Number of Gillnets for Day Gillnet Vessels Exemption

RMA	Fishing Year	Geardays
GB	2009	42,514,472
	2010	15,126,654
	2011	31,867,305
GOM	2009	9.966,069
	2010	31,093,741
	2011	29,194,483
MA	2009	180,063
	2010	94,816
	2011	76,827
SNE	2009	48,493,641
	2010	67,827,450
	2011	117,787,680

Overall, catch by gillnet vessels has decreased while geardays has increased. This suggests that catch per unit effort for gillnet vessels is decreasing. As a result, it could be argued that this exemption, while potentially providing additional flexibility to sector vessels, may not be providing the intended benefits.

Impacts to the physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch are likely to be negligible. The likely negligible impact to the physical environment/habitat/EFH would be expected despite a possible increase in geardays because gillnets have a low impact on habitat. Likely negligible impacts to allocated target species would be expected because harvest would be controlled by ACE. Net drop-out and predation could result in some fish not counting against the ACE, however, sector rules, along other economic incentives and the fact that damaged fish count against the sector's ACE, mitigate this potential.

Likewise, assuming a relatively constant ratio of non-allocated target species and bycatch to allocated target stocks, ACEs would likely limit the potential for impacts to non-allocated target species and bycatch. As discussed, data generally show a decrease in catch of non-target and monkfish, skate, and dogfish in FY 2010 and FY 2011 over FY 2009 for sector vessels who were fishing on sector trips without a monkfish DAS. Additionally, non-allocated species such as monkfish, dogfish, and skates have management measures in place to limit the catch of these species and control mortality regardless of the time of year. The use of up to 150 nets total in each RMA is consistent with the monkfish FMP. Monkfish mortality is also limited by DAS and trip limits. Fishing effort on skates is restricted by trip limits. Landing dogfish does not require the use of a DAS, but sector vessels would still be restricted by landings limits and quotas.

The increase in the number of gillnets allowed in the water at one time and the potential for an overall increase in geardays could increase interactions with protected resources. NMFS observer data from FY 2011 over FY 2009 (See Table 4.5.4.3) indicate no substantial increase in take for listed marine mammals or turtles. While participants would be required to adhere to pinger and gear requirements as outlined in the HPTRP, and would have to comply with the weak link, sinking/neutrally buoyant ground line requirements of the ALWTRP, the exemption would still have the potential to have a low negative impact on protected resources.

The increased operational flexibility would increase the expected profit margins of sector fishermen, thereby resulting in low positive impacts to sector participants. However, exempting sector vessels from the gillnet measures could result in gear being left to hold fishing ground which could increase inter-vessel conflicts. As such, implementation of this exemption would represent a low negative impact to ports.

Under the No Action Alternative for this exemption, Day gillnet vessels belonging to sectors would be limited to: 100 gillnets (of which no more than 50 can be groundfish gillnets) in the GOM RMA; 50 gillnets in the GB RMA; and 75 gillnets in the SNE/MA RMAs. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch would likely be negligible. Impacts to protected resources and ports would be low positive and impacts to sector participants would be low negative.

4. *Prohibition on a Vessel Hauling Another Vessel's Gillnet Gear*

Current regulations require vessels to deploy and haul their own gillnets. The regulations were established to facilitate the enforcement of existing regulations and also act as a mortality control measure by reducing geardays. This exemption would allow one sector vessel to deploy stand-up and tie-down gillnet gear and to have a second vessel from the same sector tend the gear while the first returns to port.

The increased flexibility afforded by this exemption may increase CPUE. An increase in CPUE coupled with ACE would tend to decrease geardays. There is also some potential that net sharing may lead to a reduction in the number of nets deployed at one time relative to vessels deploying and retrieving nets individually. However, the proposed exemption could result in longer soak times if community gear is attended to less faithfully than individual gear. This could decrease CPUE as longer soaks could result in undocumented groundfish mortality due to losses such as predation and net drop-out. Because fish that drop out or are entirely consumed by predators would not be counted against ACE, the decrease in CPUE could result in an increase in geardays and increased fishery mortality. This potential is mitigated because fishermen would still need to comply with federal law and because untended gillnets can lead to loss of nets and damaged fish still count against a sector's ACE, providing an incentive for fishermen to haul nets more frequently.

As such, for the purpose of this assessment it is assumed the exemption is likely to result in a negligible impact on CPUE, soak times, ghost fishing [lost or abandoned gear that continues to fish (FAO 2010)], and geardays. Resulting impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protected resources are likely to be negligible.

The increased operational flexibility would increase the expected profit margins of sector fishermen, thereby resulting in low positive impacts to sector participants. However, the use of community fixed gear could result in gear being deployed to "hold ground" which could increase inter-vessel conflicts. As such, implementation of this exemption would represent a low negative impact to ports.

Under the No Action Alternative for this exemption, sector vessels would have to deploy and haul their own gear. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protected resources would likely be negligible. Impacts to sector participants would be low negative and impacts to ports would be low positive because the potential to hold ground by deploying gear would be reduced.

5. *Limitation on the Number of Gillnets That May Be Hauled on Georges Bank When Fishing Under a Groundfish/Monkfish DAS*

Vessels fishing under a groundfish/monkfish DAS may haul only 50 nets per day when fishing on Georges Bank. The limit was implemented as a groundfish mortality control. The requested exemption would not permit the use of additional nets; it would allow nets deployed under existing net limits (a maximum of 150 nets), according to the Monkfish FMP, to be hauled more efficiently by vessels dually permitted under both FMPs. The exemption would only apply when specifically targeting monkfish under the Monkfish FMP on Georges Bank. Data indicate that in FY 2010 and FY 2011, vessels that were eligible to use this exemption saw an overall decrease in geardays compared to FY 2009 (see table 5.1.5-3 below); however, it is not possible to completely attribute this data specifically to the use of this exemption. Other exemptions, or changes in ACE may be responsible for these declines in gillnet geardays among vessels fishing with more than 50 gillnets in the GB RMA with a monkfish DAS.

Table 5.1.5-3

Geardays for Gillnet Vessels Eligible for Exemption (gillnet vessels fishing with more than 50 gillnets in GB on Groundfish/Monkfish DAS)

SEASON	Fishing Year	Geardays
SPRING	2009	6,435,557
	2010	3,429,494
	2011	5,088,583
SUMMER	2009	14,387,011
	2010	9,728,203
	2011	8,750,251
FALL	2009	8,451,440
	2010	658,452
	2011	9,212,995
WINTER	2009	12,736,113
	2010	1,064,158
	2011	3,351,174
Total	2009	42,010,122
	2010	14,880,308
	2011	26,403,004

The net hauling restriction serves to distribute a fixed fishing effort among more fishermen. Because sector members would still be bound by ACE and existing net limits, the exemption would allow them to increase efficiency relative to fishing under DAS. Since the number of nets would not increase, geardays are unlikely to increase. As such, impacts to the physical environment/habitat/EFH and protected resources would be negligible.

The impacts of this exemption on allocated target stocks would be limited by sector use of the exemption only when specifically targeting monkfish under the Monkfish FMP. Additional net use while targeting monkfish could increase the bycatch of allocated target stocks during a monkfish DAS for exempt sector participants compared to non-exempt fisherman. However, the allocated target stocks caught while targeting monkfish would count against the sector's ACE for those stocks. Therefore, the implementation of this exemption for all sector gillnet vessels would result in a negligible impact to allocated target stocks.

Additional net use while targeting monkfish could increase the catch of monkfish as well as the bycatch of skates and dogfish. However, non-allocated target species and bycatch have management measures in place to limit their catch and control mortality; monkfish and skate harvest are limited by DAS and trip limits and dogfish impacts are regulated by pounds-per-trip landings limits and quotas. Overall, low negative impacts to non-allocated target species and bycatch resulting from this exemption would occur when applied to all sectors.

Because sector members operate under an ACE, this exemption would increase operational flexibility when fishing under a DAS while maintaining the mortality control rationale for the measure. Implementing this exemption for all sectors would increase flexibility and profit margins resulting in a low positive impact on human communities.

Under the No Action Alternative for this exemption, sector vessels fishing under a groundfish/monkfish DAS would be allowed to haul only 50 nets per day when fishing on Georges Bank. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH, allocated target species, and protected resources would be negligible. Impacts to non-allocated target species and bycatch would be low positive and impacts to human communities would be low negative.

6. *Limitation on the Number of Hooks That May be Fished*

The existing hook limit restriction functions to reduce fishing effort, reduce fishing mortality, and reduce the potential that gear could be used to "hold" fishing ground. This exemption seeks to remove hook limits on sector vessels.

The increased operational flexibility may increase CPUE by allowing vessels to increase their harvests during times when fish are more abundant. An increase in CPUE restricted by a fixed allocation (ACE) would tend to decrease geardays. In addition, and as discussed in the Affected Environment Section, data from FY 2011 and FY 2010 over FY 2009 for longline gear tends to show a decrease in geardays, consistent with the decrease in ACL for the majority of vessels fishing with this gear type. However, exempting sector vessels from the hook limit measure could result in longer soak times or gear left unattended to hold fishing ground which could result in groundfish mortality that is neither reported nor applied to sector ACE. As noted in last years, EA, FY 2010 data does show that a very small number of longline vessels reported large increases in geardays over FY 2009. For the purpose of this assessment it is conservatively assumed the exemption would result in a minor increase in hook days.

The impact of any potential change in hook days is mitigated by the relatively small percentage (15 percent) of sector vessels that operate a mix of gear which includes bottom longlines, hooks, traps, and pots. In addition, hook fishing is noted by NMFS to strongly limit catch of "flatfishes," which are the category of stocks of greatest conservation concern. Exemptions that could shift effort toward hook fishing have the potential to protect weaker stocks of flatfish and thus provide some conservation benefits to these species relative to targeting the multispecies complex with some other gear types.

Impacts to physical environment/habitat/EFH, allocated target stocks, and protected resources would be negligible and impacts to non-allocated target stocks and bycatch would likely be negligible. Impacts to physical environment/habitat/EFH and protected resources would be negligible due to the minimal expected change in geardays and the low level of impact associated with hook gear. Potential impacts to allocated species are limited by ACE, offsetting incentives to increase soak time, and the low proportion of the fleet that utilizes hook gear. Similarly, ACE is likely to limit potential impacts to non-allocated target species and bycatch under the assumption of a relatively constant ratio of non-allocated target species and bycatch to allocated target stocks. In addition, non-allocated target species and bycatch have management measures in place to limit their catch and control mortality, with which sector vessels would still be required to comply.

The increased operational flexibility would increase the expected profit margins of sector fishermen, thereby resulting in low positive impacts to sector participants. However, increasing the number of hooks

fished by each vessel could result in gear being deployed to "hold ground" which could increase inter-vessel conflicts. As such, implementation of this exemption would represent a low negative impact to ports.

Under the No Action Alternative for this exemption, sector hook vessels would be limited in the number of hooks they fish. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch and protected resources would be negligible or likely negligible. Impacts to sector participants would be low negative and impacts to ports would be low positive because the potential to hold ground by deploying gear would be reduced.

7. *Length and Horsepower Restrictions on DAS Leasing*

Currently multispecies vessels are allowed to lease DAS from other vessels provided they meet the restrictions of the DAS Leasing Program concerning vessel length and horsepower. The intent of the restriction is to maintain the character of the fleet. Sectors have requested an exemption to allow DAS leasing to vessels in other approved sectors with this exemption irrespective of length and horsepower.

This exemption is related to retention of monkfish and skates harvested while vessels participate in the multispecies fishery. Sector vessels are exempt from the requirement to use a Northeast Multispecies DAS to harvest groundfish, but sector vessels are still allocated NE multispecies DAS to use in complying with provisions of the Monkfish and Skate FMPs. While groundfish sector fishermen would be exempt from the use of DAS to catch allocated target species, they would still need to expend groundfish DAS to land and retain an increased quantity of monkfish or skates under some circumstances.

This exemption would not be expected to increase fishing effort as the total number of DAS allocated to the fishery would not increase. Impacts to physical environment/habitat/EFH and protected resources would be negligible as geardays are not expected to change. Similarly, ACE and DAS regulation would ensure negligible impacts to allocated target species, and non-allocated target species and bycatch by capping overall mortality. In addition, non-allocated target species and bycatch have management measures in place to limit their catch and control mortality, with which sector vessels would still be required to comply.

The exemption from DAS leasing restrictions would result in low positive impacts to human communities as it would expand the pool of vessels that sectors could lease DAS. Out of the 291 total leases approved in FY 2011, 151 were because of this exemption. While the character of the fleet could change somewhat if sectors are exempted from DAS leasing restrictions, these changes may occur without this exemption because ACE can be fished by vessels of any size. This potentially negative factor is more than offset by the potential for increased vessel profitability and the positive effect that revenue would have on ports resulting in a low positive impact on ports.

Under the No Action Alternative for this exemption, sector vessels would be subject to length and gear restrictions when leasing DAS within and between sectors. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch and protected resources would be negligible, and impacts to human communities would be low negative.

8. *GOM Sink Gillnet Mesh Exemption*

Sink gillnet vessels accounted for 15 percent of commercial landings for GOM haddock from calendar year (CY) 1997 – CY 2002, but only 11 percent from CY 2003 through CY 2007. This change is partly attributed to a court ordered increase in mesh size that was adopted in 2002, and then incorporated into Amendment 13 (implemented May 1, 2004) because the increased mesh size is ineffective for targeting haddock (see Amendment 16, Figure 132 and Marciano et al. 2005).

Sectors have requested an exemption to allow smaller (6-inch) mesh sink gillnets to be used within the GOM RMA from January through May. By reducing the mesh size, sink gillnet fishermen may be able to target GOM haddock. As such, the exemption would likely increase the number of gillnet days in the GOM RMA and may reduce the possibility that GOM haddock would be under-harvested. Because haddock harvest is limited by a sector's ACE, and because mobile, bottom tending fishing gear tends to be less selective, the increased use of sink gillnets could, theoretically, reduce the number of geardays associated with mobile, bottom-tending fishing gear like trawls if vessels switch to using sink gillnets to take advantage of this exemption.

This exemption would institute a net limit for Day gillnet vessels in sectors that opted for this exemption, and set a limit of between 50 and 150 nets. To maximize the flexibility for sector vessels fishing under this exemption, NMFS is allowing Day gillnet vessels participating in a sector granted both the GOM sink gillnet mesh exemption and the general net limit exemption to fish up to 150 stand-up nets in the GOM RMA during this period (up to 150 nets total in all RMAs). Day gillnet vessels participating in a sector that has not also been approved for the general net limit exemption will be restricted to the limit of 50 stand-up sink gillnets during this period, consistent with existing net limits in the GOM RMA specified at § 648.80(a)(3)(iv)(B)(2). The exemption could theoretically result in longer soak times because of the time required to retrieve and process more nets than would be allowed per non-exempt sector vessel. Longer soaks could result in undocumented mortality of allocated target species and non-allocated target species and bycatch due to losses such as predation and net drop-out. Longer soaks could also result in allocated target species and non-allocated species and bycatch mortality that is not documented in untended gillnets. There may also be increased discards due to predation damage which would be undocumented if the entire fish is consumed. However, untended gillnets can lead to loss of nets, and damaged fish is still counted against the sector ACE, providing incentives for fishermen to haul nets more frequently. To the extent that undocumented losses occur, there is a potential for an increased mortality rate on allocated target and non-allocated target species and bycatch.

While gillnet days in the GOM RMA may increase relative to mobile, bottom-tending fishing gear like trawls, bottom gillnets have negligible to minor impacts to benthic habitats (NEFSC 2002). These impacts would not be different from impacts that are occurring due to current fishing practices (gillnetting during January-April currently uses 6.5-inch rather than the requested 6-inch mesh nets); therefore it would be expected that this exemption would likely result in a negligible impact to physical environment/habitat/EFH.

Impacts to allocated target species and non-allocated target species and bycatch would be negligible or would likely be negligible. This is largely because ACE controls the harvest of allocated target species and, under the assumption of a relatively constant ratio of non-allocated target species and bycatch to allocated target stocks, ACE also is likely to limit potential impacts to non-allocated target and bycatch species. In addition, participating vessels would not be allowed to use tie-down nets as part of this exemption and non-allocated target species and bycatch have management measures in place to limit their catch and control mortality, with which sector vessels would still be required to comply. This would minimize the incidence of skate and monkfish catch as flatfish nets are generally used to target these species. However, it is worth noting that, while the exemption is limited to the GOM RMA, the GOM RMA also overlaps stock areas for GB and SNE/MA stocks. SNE/MA winter flounder, in particular, is overfished and required a 100 percent reduction in fishing mortality under Amendment 16. Reducing the minimum mesh size during this period could potentially increase catch of SNE/MA winter flounder.

The potential for an increased number of gillnets could increase interactions with protected resources by allowing more opportunities for animals to be caught. The restricted seasonality associated with the exemption would limit potential impacts to protected resources to a period from January 1 to April 30. While participants would also be required to adhere to pinger and gear requirements as outlined in the HPTRP, and would have to comply with the weak link, sinking/neutrally buoyant ground line requirements of the ALWTRP the exemption would have a low negative impact on protected resources due to the potential for increased geardays. In contrast, the GOM sink gillnet exemption would allow a greater catch of haddock to be retained increasing revenue in the fishery. This would represent a positive impact to human communities.

It should be noted that the sector GOM haddock allocation, as proposed for FY 2013, is a dramatic reduction from previous years. As a result, the allocation to each sector and sector vessel will be substantially less than before. Because of this, it could be argued that this exemption is no longer necessary because vessels do not need the additional season and gear flexibility to help the harvest a larger amount of GOM haddock, which was the original intent of this exemption.

Under the No Action Alternative for this exemption, the minimum mesh size for sector vessels fishing sink gillnets in the GOM RMA from January through May would be 6.5 inches. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch would be likely negligible to negligible. Impacts to protected resources would be low positive and impacts to human communities would be low negative.

9. *Prohibition on Discarding*

Current regulations prohibit sector vessels from discarding any legal-sized fish of allocated stocks. The requirement was intended to ensure accurate monitoring of sector ACE.

As a result of these regulations, sector vessels have to store catch that may be damaged or contaminated in separate totes on deck in order to keep unmarketable catch separate from the food grade product. These additional storage totes can compromise fisherman safety and/or potentially destabilize the boat.

Once in port, the disposal of unmarketable fish can pose an economic challenge. A comparison of data from FY 2010 to FY 2011 show that observed trips that reported keeping unmarketable species catch fell 51 percent. Live pounds of unmarketable fish fell 83 percent, from 2,913 lbs to 494 lbs. The amount of unmarketable fish that a vessel brings in on a single trip varies by gear type. Gillnet trips accounted for the majority of the kept legal-sized unmarketable fish, and show similar reductions in trips and catch (51, and 83 percent, respectively). Trips that reported discards of unmarketable fish also fell 9 percent, with a 14 percent reduction in catch, from 10,546 lbs to 9,064 lbs. These reductions in discard are likely attributed to the reductions in overall ACL from FY 2010 to FY 2011.

The requested exemption would allow sector vessels on a sector trip to discard unmarketable fish at sea. The exemption would apply to all vessels in the sector. Damaged fish that are discarded fish would be recorded by At-Sea Monitors on observed trips and incorporated into the sector's specific discard rates by stock and gear strata for unobserved trips. Since sectors are capped by an ACE, and discards count against ACE, the ability to discard fish at sea would not result in a change in gear mix, CPUE, fishing effort/geardays, or landings.

Impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protected resources would be likely to be negligible. Impacts to physical environment/habitat/EFH and protected resources would be negligible because geardays are not expected to change. Potential impacts to allocated target species are limited by the fact that discards are already deceased and would count against ACE. ACE is also likely to limit potential impacts to non-allocated target species and bycatch under the assumption of a relatively constant ratio of non-allocated target species and bycatch to allocated target stocks. In addition, non-allocated target species and bycatch have management measures in place to limit their catch and control mortality, with which sector vessels would still be required to comply.

The increased operational flexibility is expected to increase safety and may increase the profitability of vessels and/or dealers. This would represent a low positive impact on human communities.

Under the No Action Alternative for this exemption, sector vessels would be required to bring any legal-sized fish of allocated stocks to port. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protect resources would be negligible or likely negligible. Impacts to human communities would be low negative.

10. *Daily Catch Reporting by Sector Managers for Vessels Participating in the Closed Area 1 Hook Gear Haddock SAP*

Sector vessels are required to submit daily reports to the Sector Manager while fishing in the Closed Area I Hook Gear Haddock SAP. The Sector Manager compiles these into a report and submits it daily to NMFS. The requested exemption would relax the requirement that vessels submit a daily catch report to the Sector Manager. Instead Sector Managers would require each vessel to submit their own report to NMFS via VMS.

As this is an administrative matter, an exemption from this regulation would have a negligible effect on physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protected resources.

This exemption would reduce the administrative burden on Sector Managers but not necessarily sector vessels which would have to submit reports through VMS to NMFS at a cost of approximately $0.84 per transmission. However, the fact that the exemption request has been submitted suggests that participants in the requesting sector would find daily vessel reporting advantageous. Therefore, it is expected that this exemption would represent a low positive impact on human communities.

Under the No Action Alternative for this exemption, sector vessels would be required to submit daily reports to the Sector Manager while fishing in the Closed Area I Hook Gear Haddock SAP and Sector Managers would compile these into a report and submits it to NMFS. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, protected resources would be negligible. Impacts to human communities would be low negative.

11. *Gear Requirements in the U.S./Canada Management Area*

In the U.S./Canada Management Area both the U.S. and Canada coordinate the management of transboundary fisheries stocks including GB cod, GB haddock, and GB yellowtail flounder. U.S. vessels in the U.S./Canada area are required to use gear that is designed to minimize the catch of cod (the stock which tends to reach its TAC first) and constrain catches of other stocks. These gear types currently include the haddock separator trawl and the Ruhle trawl. The gear requirements are intended to ensure that the U.S. does not exceed its share of U.S./Canada Area TAC particularly the GB cod TAC.

Sectors have requested an exemption to allow their vessels to use any type of trawling gear while fishing in the U.S./Canada area. The exemption is intended to increase CPUE by allowing all trawl gear types in the area. Since sector members would operate under an ACE, a minor increase in CPUE could result in fewer geardays. However, the ability to target specific stocks may also result in an increase in geardays. For the purpose of this assessment an increase in U.S./Canada Area trawl days is assumed.

Impacts to physical environment/habitat/EFH would be low negative. The low negative impact to habitat is the result of an increase in trawl days and the relatively adverse habitat impacts that are associated with trawling.

Impacts to allocated target species would likely be negligible because harvest is controlled by ACE, including separate ACEs for Eastern U.S./Canada Area cod and haddock. Likewise, assuming a relatively constant ratio of non-allocated target species and bycatch to allocated target stocks, ACE would limit the potential for impacts to non-allocated target species and bycatch. However, stocks such as GB cod and GB yellowtail, both which are considered overfished and subject to overfishing, are prevalent in the area. Increased catch of these stocks could limit the ability for vessels to harvest other under-utilized stocks in the area (i.e. haddock). Additionally, non-allocated species such as monkfish, dogfish, and skates have management measures in place to limit the catch of these species and control mortality. Therefore, impacts to non-allocated target species and bycatch would be negligible.

Impacts to protected resources would likely be negligible to low negative. The likely negligible to low negative impact to protected resources is the result of an increase in trawl days and the observations that trawl gear results in occasional incidental mortality/injury to pinnipeds and cetaceans, although it is more detrimental to sea turtles. However, the impact to sea turtles is likely mitigated due to the lower prevalence of these species in the U.A./Canada Area compared to the Mid-Atlantic.

Because sector members would operate under an ACE, an exemption from this restriction would increase their operational flexibility while maintaining the mortality control rationale for the measure. In addition, this exemption could result in increased profit margins if sectors are able to more efficiently harvest underutilized ACEs, such as haddock. Therefore this exemption should result in a low positive impact on human communities.

Under the No Action Alternative for this exemption, sector vessels would not be able to use all trawl gear types when fishing the U.S./Canada Area. Relative to the approval of the exemption, impacts to allocated target species and non-allocated target species and bycatch would be negligible. Because trawl geardays would not increase, impacts to physical environment/habitat/EFH would be low positive. Impacts to protected resources would likely be negligible or possibly low positive. In contrast, impacts to human communities would be low negative.

12. *Requirement to Power a VMS While at the Dock*

Groundfish vessels are required to have an approved and operational VMS on board in order to fish on a Northeast Multispecies DAS, on a sector trip, or when a vessel has declared its intent to fish in more than one broad stock area on the same trip. Once a vessel enters the Northeast groundfishery the VMS must remain powered-up except under limited circumstances. The requirement facilitates the monitoring of vessels engaged in the Northeast groundfishery.

Sectors have requested an exemption from keeping the VMS units powered while tied to the dock or on a mooring. As this is an administrative matter, exemption to this regulation would have a negligible effect on physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protected resources. The requested exemption would reduce the administrative and financial burden of powering the VMS which would represent a low positive impact on human communities.

Under the No Action Alternative for this exemption, sector vessels would be required to have an approved and operational VMS on board in order to fish on a Northeast Multispecies DAS, on a sector trip, or when a vessel has declared their intent to fish in more than one broad stock area on the same trip. Once a vessel entered the fishery, the VMS would need to be powered up except under specific circumstances. As this is an administrative exemption, impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protect resources would be negligible relative to the approval of the exemption. Impacts to human communities would be low negative.

13. *DSM Requirements for Vessels Fishing West of 72°30' W. long.*

NMFS data suggest that few groundfish are caught by vessels that fish west of 72°30' W. long. Data from 2009 and 2010 show that a negligible amount of groundfish were caught on these trips. Sector data (dealer, vessel, and VMS) from FY 2010 show that approximately 14130 lbs of groundfish was caught on 23 out of 210 sector trips by vessels in this area. Therefore, groundfish only accounted for approximately 2.23 percent of the total catch on these trips. In addition, this would not be an exemption from any mortality control for allocated or non-allocated stocks. There would likely be negligible impacts to allocated target, and non-allocated target species as a result of this exemption. This exemption would not be expected to influence the magnitude or location of catch, or geardays, and thus would be expected to result in negligible impacts to physical environment/EFH and protected resources as compared to No Action.

The regulations state that in FY 2013 the fishing industry will fully pay for dockside-monitoring. However, FW 48 contains an alternative that would remove the requirement for DSM. Regulations require both at-sea monitoring at a level sufficient to meet requirements and dockside monitoring of 20 percent of trips. Dockside monitoring from zero percent up to 100 percent is possible, pending measures adopted in FW 48. If Federal funding were to become available to cover all or part of DSM, vessels would still have to pay upfront for DSM, and then be reimbursed for the cost by NMFS. There is also increased reporting burden for vessels to fulfill the DSM requirements. This exemption would likely have positive social impacts for the portion of the fleet to which it is directed. If these vessel operators are not required to pay for dockside monitoring, they can run more profitable trips and have more occupational opportunities. These trips are likely targeting monkfish, skates, and dogfish, and as such, this exemption may allow these vessels to more freely fish for these stocks, without the increase cost burden of DSM. In general, a lower level of monitoring may lead to the negative social impacts of regulatory discard, and less accurate data to use in management to ensure fairness in regulations. However, since these vessels

land a minor percentage of the overall groundfish ACL, NMFS does not expect this alternative to cause a noticeable difference in regulatory discard, and in the development of more accurate data to inform management and ensure fairness in regulations. Overall, this exemption would likely result in a negligible to low positive impact on human communities.

Based on final data, the overall average cost associated with dockside monitoring for all monitored trips in FY 2010, averaged a little less than $0.02 per landed pound. FY 2010 data is used in this instance since dockside monitoring has not been required since September 19, 2011. Based off this data, the cost for dockside monitoring for FY 2010 was $488,428. Depending on actions contained in Framework 48, dockside monitoring levels could be as high as 100% in FY 2013. Note that the actual overall average dockside monitoring cost per pound landed will be zero for any lease-only sectors and may be higher for sectors with below average landings per trip since the trip cost gets spread out over fewer pounds. We expect vessels fishing pursuant to this exemption to land a small amount of groundfish. Similarly, the average cost per pound may be lower for sectors with higher than average landings per trip. These costs would be eliminated if this exemption were to be approved. If sectors were not required to pay upfront for dockside monitoring, they could run more profitable trips and have more occupational opportunities. Further, reporting burden would decrease. However, a lower level of monitoring may lead to the negative social impacts of regulatory discard, and less accurate data to use in management to ensure fairness in regulations. Therefore, the exemption would result in a likely negligible impact on sector participants and ports.

Under the No Action Alternative, the monitoring requirements adopted by Amendment 16 for commercial groundfish fishing vessels would continue. However, please note that FW 48 contains an alternative that would remove the requirement for DSM. Regulations require both at-sea monitoring at a level sufficient to meet requirements and dockside monitoring of 20 percent of trips. Dockside monitoring from zero percent up to 100 percent is possible, pending measures adopted in FW 48. DSM would be paid entirely by industry in FY 2013 unless funding becomes available. At-sea monitoring must, at a minimum, meet the coefficient of variation standard of the SBRM and the level of required coverage will be specified by NMFS. However, at-sea monitoring gathers different data than DSM, and often the At-Sea Monitor does not have the time required to gather data as detailed as that gathered by the DSM. Monitoring requirements do not have direct biological impacts but can indirectly influence the ability of the management program to achieve mortality targets. Accurate landings and discard information are needed in order to conduct stock assessments. By requiring an at-sea monitoring program, information is collected in order to estimate discards with sufficient accuracy to support quota-monitoring needs. Similarly, random dockside monitoring of groundfish trips reduces the likelihood that some catches will be unreported.

The No Action would not change the mortality control for allocated or non-allocated stocks. Therefore, the No Action would likely result in negligible impacts to allocated target species, and non-allocated target species. The No Action is not expected to influence the magnitude or location of catches, and thus is expected to result in negligible impacts to physical environment/EFH and protected resources. Although, in general, a higher level of monitoring is expected to lead to the positive social impacts of reducing regulatory discarding and developing more accurate data which will inform management and ensure fairness in regulations, since these vessels land a minor percentage of the overall groundfish ACL, NMFS does not expect this alternative to cause a noticeable difference in regulatory discard, and in the development of more accurate data. Therefore, the No Action Alternative would likely have negligible to low-negative impacts on human communities.

14. DSM Requirements for Handgear A-Permitted Sector Vessels

This alternative would allow hook-only and handgear vessels to be exempt from the requirement for dockside monitoring. Similar to the prior exemptions, there is a possibility that if this exemption is approved the catch information from these vessels may be less accurate than if the requirement remains in place. However, this assumes that the absence of a monitor may lead to inaccurate reporting, and there is no empirical evidence to determine if this will actually occur. This also assumes that the absence of a

monitor may lead to inaccurate reporting, and there is no empirical evidence to determine if this will actually occur.

In FY 2011, all handgear vessels landed approximately 0.21 percent of the catch landed by sector permitted vessels on sector trips. Therefore, it is unlikely that this exemption would make a noticeable difference in the ability to assess stocks as a whole. In addition, this is not an exemption from any mortality control for allocated or non-allocated stocks. As a result, it is likely that there would be negligible impacts to allocated target, and non-allocated target species as a result of this alternative, when compared to No Action. This exemption would not be expected to influence the magnitude or location of catch, or geardays, and thus would be expected to result in negligible impacts to physical environment/EFH and protected resources as compared to No Action.

The regulations state that in FY 2013 the fishing industry will fully pay for dockside-monitoring. Please note that FW 48 contains an alternative that would remove the requirement for DSM. Regulations require both at-sea monitoring at a level sufficient to meet requirements and dockside monitoring of 20 percent of trips. Dockside monitoring from zero percent up to 100 percent is possible, pending measures adopted in FW 48. If Federal funding were to become available to cover all or part of DSM, vessels would still have to pay upfront for DSM, and then be reimbursed for the cost by NMFS. There is also increased reporting burden for vessels to fulfill the DSM requirements.

This exemption would likely have positive social impacts for the portion of the fleet to which it is directed. If these small vessel operators are not required to pay for dockside monitoring, they can run more profitable trips and have more occupational opportunities. For the fleet as a whole, however, this option may appear to be inequitable. The removal of dockside monitoring requirements for only these types of vessels may seem unfair to other operators that land similar or slightly higher amounts of groundfish with different permit types. In general, a lower level of monitoring may lead to the negative social impacts of regulatory discard, and less accurate data to use in management to ensure fairness in regulations. However, since these vessels land a minor percentage of the overall groundfish ACL, NMFS does not expect this alternative to cause a noticeable difference in regulatory discard, and in the development of more accurate data. Overall, this exemption would likely result in a negligible to low-positive impact on human communities.

Under the No Action Alternative, the monitoring requirements currently in place would continue, unless changed through FW 48. Current regulations require both at-sea monitoring at a level sufficient to meet requirements and dockside monitoring of 20 percent of trips. Please note that FW 48 contains an alternative that would remove the requirement for DSM. Dockside monitoring from zero percent up to 100 percent is possible, pending measures adopted in FW 48. DSM would be paid entirely by industry in FY 2013 unless funding becomes available. At-sea monitoring must, at a minimum, meet the Coefficient of variation standard of the SBRM and the level of required coverage will be specified by NMFS. However, at-sea monitoring gathers different data than DSM, and often the At-Sea Monitor does not have the time required to gather data as detailed as that gathered by the DSM. Monitoring requirements do not have direct biological impacts but can indirectly influence the ability of the management program to achieve mortality targets. Accurate landings and discard information are needed in order to conduct stock assessments. By requiring an at-sea monitoring program, information is collected in order to estimate discards with sufficient accuracy to support quota-monitoring needs. Similarly, random dockside monitoring of groundfish trips reduces the likelihood that some catches will be unreported.

Under the No Action option, the Amendment 16 requirement that sectors develop and fund an at-sea monitoring program is not changed. Similarly, under the No Action Alternative, the DSM will also continue. As a result, the ability to constrain sector catches to the desired quotas should continue. Because these vessels land a small percentage of the groundfish landed by permitted vessels, it is unlikely that this will make a noticeable difference in the ability to assess stocks as a whole. For cod, pollock, and haddock – the three species most often landed by these permits, the percentages of landings are higher but still a small part of total landings and marginal improvements in catch data are not likely to be detectable. Therefore, the No Action Alternative would likely have a negligible impact on allocated target, and non-

allocated target species. Neither alternative, including the No Action is expected to influence the magnitude or location of catches, and thus is expected to result in negligible impacts to physical environment/EFH and protected resources.

There is increased reporting burden for vessels to fulfill the DSM requirements. For small Hook and Handgear vessels, their share of the DSM burden is disproportionately higher than larger vessels, and as such, it is difficult for these vessels to cover the upfront cost of this monitoring;. The costs associated with this option would likely be short term negative impacts to these Hook and Handgear vessels. As with any measure that increases the operating costs of the fishery without guaranteeing a matching increase in revenue, this option may cause disruptions in daily living or changes in occupational opportunities if fishing practices need to be altered to make up for lost revenue. Although, in general, a higher level of monitoring is expected to lead to the positive social impacts of reducing regulatory discarding and developing more accurate data which will inform management and ensure fairness in regulations, since these vessels land a minor percentage of the overall groundfish ACL. NMFS does not expect this alternative to cause a noticeable difference in regulatory discard, and in the development of more accurate data. Therefore, the No Action Alternative would likely have negligible to low-negative impacts on human communities.

15. *DSM Requirements for Monkfish trips in the monkfish Southern Fishery Management Area (SFMA)*

The regulations state that in FY 2013 the fishing industry will fully pay for dockside-monitoring. Please note that FW 48 contains an alternative that would remove the requirement for DSM. Regulations require both at-sea monitoring at a level sufficient to meet requirements and dockside monitoring of 20 percent of trips. Dockside monitoring from zero percent up to 100 percent is possible, pending measures adopted in FW 48. If Federal funding were to become available to cover all or part of DSM, vessels would still have to pay upfront for DSM, and then be reimbursed for the cost by NMFS. There is also increased reporting burden for vessels to fulfill the DSM requirements.

Trawl vessels fishing on a NE multispecies DAS or on a sector trip in the Southern New England RMA must use a minimum 6-inch (15.2-cm) diamond mesh or 6.5-inch (16.5-cm) square mesh through the body and 6.5-inch (16.5-cm) square or diamond mesh applied to the codend of a trawl net (648.80(b)(2)(i)). Day and Trip gillnet vessels must fish with a minimum mesh size of 6.5 inches (16.5 cm) throughout the entire net (§ 648.80(b)(2)(iv)). Monkfish management measures at § 648.91(c)(1)(i) require vessels fishing under the monkfish DAS program with trawl gear in the SFMA to utilize a minimum 10-inch (25.4-cm) square or 12-inch (30.5-cm) diamond mesh throughout the codend and for at least 45 continuous meshes forward of the terminus of the net. The monkfish regulations also require vessels fishing under the monkfish DAS program with gillnet gear to fish with a minimum diamond mesh size of 10 inches (25.4 cm) or larger (§ 648.91(c)(1)(iii)). Vessels that are issued both monkfish limited access and NE multispecies limited access permits must comply with the more restrictive set of management measures. Therefore, a vessel that is fishing under concurrent monkfish DAS and NE multispecies DAS on a sector trip must abide by the more restrictive monkfish gear requirements.

To analyze the impacts of this exemption, NMFS identified a subset of groundfish trips under concurrent monkfish/NE multispecies DAS. Sector data (dealer, vessel, and VMS) from May 1, 2011 through Sept 30, 2011 for this subset of trips show sector trips declared into the SFMA monkfish fishery using 10-inch (25.4-cm) or larger mesh, as required in the Monkfish FMP, landed 0.17 percent of groundfish (11,368 lbs) on 80 trips out of the 1606 sector trips declared in the monkfish SFMA that landed groundfish. NMFS approved this exemption in FY 2011, provided that the vessel fishes the entirety of its trip in the SFMA. Sector vessels utilizing this exemption must have non-conforming gear stowed as specified in § 648.23(b), and comply with dockside monitoring hail requirements specified at § 648.87(b)(5)(i)(A). Therefore, due to the minor amount of expected groundfish catch from vessels who utilize this exemption, the impacts to the VECs are expected to be similar to those discussed under exemption number 14.

16. Prohibition on Fishing Inside and Outside the Closed Area I Hook Gear Haddock SAP while on the Same Trip

Multispecies vessels fishing on a trip within the Closed Area I Hook Gear Haddock SAP are prohibited from deploying fishing gear outside of the SAP on the same trip when they are declared into the SAP (§ 648.85(b)(7)(ii)(G)). This restriction was established to avoid potential quota monitoring and enforcement complications that could arise when a vessel fishes both inside and outside the SAP on the same trip (Framework Adjustment 40-A, 2004). This exemption would allow sectors vessels to fish both inside and outside the Closed Area I Hook Gear Haddock SAP on the same trip. To identify catch from inside and outside the SAP on the same trip, sector vessels would be required to send NMFS a catch report that specifically identifies GB Haddock (and any other shared allocation) catch from inside the SAP within 24 hours of landing or prior to the end of the trip. Sectors wish to increase their operational flexibility and efficiency with this exemption by having the opportunity to fish both inside and outside the SAP on the same trip. NMFS has no reason to believe that this particular catch report would be any less accurate than the existing sector catch reports. As such, NMFS expects negligible impacts on the VECs as a result of this exemption for both alternatives, with the exception of human communities. This exemption is likely to result in a low positive impact on human communities, as it would allow for increased operational flexibility and efficiency. Similarly, relative to approval, the No Action would likely result in low negative impacts to human communities, as sectors would not have this additional flexibility.

17. Prohibition on a Vessel Hauling Another Vessel's Hook Gear

Current regulations prohibit one vessel from hauling another vessel's hook gear (§§ 648.14(k)(6)(ii)(B)). The regulations facilitate the enforcement of existing regulations as a single vessel is associated with each set of gear. Sectors have requested an exemption to the rules prohibiting hauling another vessels gear. The exemption would allow fishermen from within the same sector to haul each other's hook gear. However, all vessels participating in "community" fixed gear would be jointly liable for any violations associated with that gear. The regulations were established to facilitate the enforcement of existing regulations and also act as a mortality control measure by reducing geardays. The increased flexibility afforded by this exemption may increase CPUE. An increase in CPUE coupled with ACE would tend to decrease geardays. There is also some potential that gear sharing may lead to a reduction in the number of hooks deployed at one time relative to vessels deploying and retrieving hook gear individually. However, the proposed exemption could result in longer soak times if community gear is attended to less faithfully than individual gear. This could decrease CPUE as longer soaks could result in undocumented groundfish mortality due to losses such as predation and drop-out. Because fish that drop out or are entirely consumed by predators would not be counted against ACE, the decrease in CPUE could result in an increase in geardays and increased fishery mortality. This potential is mitigated because fishermen would still need to comply with federal law and because untended gear can lead to loss of gear, providing an incentive for fishermen to haul gear more frequently.

As such, for the purpose of this assessment it is assumed the exemption is likely to result in a negligible impact on CPUE, soak times, ghost fishing [lost or abandoned gear that continues to fish (FAO 2010)], and geardays. Impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protected resources are likely to be negligible.

The increased operational flexibility would increase the expected profit margins of sector fishermen, thereby resulting in low positive impacts to sector participants. However, the use of community fixed gear could result in gear being deployed to "hold ground" which could increase inter-vessel conflicts. As such, overall, implementation of this exemption would represent a negligible impact to human communities.

Under the No Action Alternative for this exemption, sector vessels would have to deploy and haul their own gear. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH,

allocated target species, non-allocated target species and bycatch, and protected resources would likely be negligible. Impacts to human communities would be negligible.

18. Requirement to Declare Intent to Fish in the Eastern US/CA Area Haddock SAP and CA II Yellowtail/Haddock SAP Prior to Departure

Multispecies vessels are required to declare that they will be fishing in either the Eastern US/CA Haddock SAP or the CA II Yellowtail/Haddock SAP prior to leaving the dock (§ 648.85(b)(8)(v)(D) and § 648.85(b)(3)(v)). Framework 40A (2004) implemented this measure so that vessels fishing strictly in those areas could be credited days-at-sea (DAS) for their transit time to and from those SAPs. Sectors are requesting an exemption from having to declare their intent to fish in those areas because they are no longer limited by multispecies DAS and their catch is limited to their ACE. Sectors seek to increase their efficiency with this exemption.

This is an administrative matter. Therefore, an exemption from this regulation would have a negligible effect on physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protected resources. The requested exemption would reduce the administrative burden of declaring intent to fish in either area prior to leaving the dock which would represent a low positive impact on human communities.

Under the No Action Alternative for this exemption, sector vessels would be required to declare their intent to fish in the Eastern US/CA Area Haddock SAP and CA II Yellowtail/Haddock SAP prior to departure from the dock in order to fish on a Northeast Multispecies DAS, on a sector trip, or when a vessel has declared their intent to fish in more than one broad stock area on the same trip. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protect resources would be negligible. Impacts to human communities would be low negative as sectors would not benefit from additional flexibilities.

19. DSM Requirements for Jig Vessels

This alternative would allow jig vessels to be exempt from the requirement for dockside monitoring. Similar to the prior DSM exemptions, there is a possibility that if this exemption is approved the catch information from these vessels may be less accurate than if the requirement remains in place. However, this assumes that the absence of a monitor may lead to inaccurate reporting, and there is no empirical evidence to determine if this will actually occur. Although NMFS does not have an accurate method to determine the number of groundfish trips that are "jig" trips, as stated in the Environmental Assessment for Framework 45, handgear vessels land less than one-half of one percent of the groundfish landed by permitted vessels; therefore, it is unlikely that this will make a noticeable difference in the ability to assess stocks as a whole. In addition, this is not an exemption from any mortality control for allocated or non-allocated stocks. As a result, it is likely that there would be negligible impacts to allocated target and non-allocated target species as a result of this alternative, when compared to the No-Action alternative. This exemption is not expected to influence the magnitude or location of catch, or gear days, and thus is expected to result in negligible impacts to physical environment/EFH and protected resources as compared to no action.

Data from 12 jig trips for FY 2010-11 observed by an at-sea monitor or observer was analyzed. It should be noted that only data from trips that were observed or monitored was used because there is no unique trip declaration identifying vessels fishing with jigs. A total of 16,269 lbs of fish was caught on these trips. Of those caught, 1,053 lbs were discarded, and of those discards, 1,004 lbs were cod. This equates to approximately 1,355 lbs of fish caught and 84 pounds of cod discarded per trip.

The regulations state that in FY 2013 the fishing industry will fully pay for dockside-monitoring. Please note that FW 48 contains an alternative that would remove the requirement for DSM. Regulations require both at-sea monitoring at a level sufficient to meet requirements and dockside monitoring of 20 percent of trips. Dockside monitoring from zero percent up to 100 percent is possible, pending measures adopted in

FW 48. If Federal funding were to become available to cover all or part of DSM, vessels would still have to pay upfront for DSM, and then be reimbursed for the cost by NMFS. There is also increased reporting burden for vessels to fulfill the DSM requirements. For small jig vessels, their share of the DSM burden is disproportionately higher than larger vessels, because they land less groundfish per trip on average, and as such, it is difficult for these vessels to cover the upfront cost of this monitoring. This exemption would likely have positive social impacts for the portion of the fleet to which it is directed. If these small vessel operators are not required to pay for dockside monitoring, they can run more profitable trips and have more occupational opportunities. For the fleet as a whole, however, this option may appear to be inequitable. The removal of dockside monitoring requirements for only these types of vessels may seem unfair to other operators that land similar or slightly higher amounts of groundfish with different permit types. In general, a lower level of monitoring may lead to the negative social impacts of regulatory discard, and less accurate data to use in management to ensure fairness in regulations. However, since Jig vessels land a minor percentage of the overall groundfish ACL, NMFS does not expect this alternative to cause a noticeable difference in regulatory discard, and in the development of more accurate data. Therefore, this exemption would likely result in a negligible to low-positive impact on sector participants and ports.

Under the No-Action alternative, the monitoring requirements adopted by Amendment 16 for commercial groundfish fishing vessels would continue, unless changed through Framework 48. Amendment 16 includes both at-sea monitoring at a level sufficient to meet requirements and dockside monitoring of 20 percent of trips. The regulations state that in FY 2013 the fishing industry will fully pay for dockside-monitoring. Please note that FW 48 contains an alternative that would remove the requirement for DSM. At-sea monitoring must, at a minimum, meet the CV standard of the SBRM and the level of required coverage will be specified by NMFS. However, at-sea monitoring gathers different data than DSM, and often the at-sea monitor does not have the time required to gather data as detailed as that gathered by the DSM. Monitoring requirements do not have direct biological impacts but can indirectly influence the ability of the management program to achieve mortality targets, as accurate landings and discard information are needed in order to conduct stock assessments. The at-sea monitoring program collects information primarily to estimate discards with sufficient accuracy to support quota-monitoring needs. Similarly, random dockside monitoring of groundfish trips reduces the likelihood that some catches will be unreported. While this should improve the accuracy of catch statistics, since the requirement was first adopted at the start of FY 2010 there is no data available yet to evaluate the program's effectiveness.

Under the No-Action option, the Amendment 16 requirement that sectors develop and fund an at sea monitoring program is not changed. As a result, there is a high expectation that an adequate program will be in place to accurately estimate discards. Similarly, under the No-Action alternative, the dockside monitoring program will also continue. As a result, the ability to constrain sector catches to the desired quotas should continue. However, because these vessels land less than one-half of one percent of the groundfish landed by permitted vessels, it is unlikely that this will make a noticeable difference in the ability to assess stocks as a whole. For cod, pollock, and haddock – the three species most often landed by these permits, the percentages of landings are higher but still a small part of total landings and marginal improvements in catch data are not likely to be detectable. Therefore, the No-Action alternative would likely have a negligible impact on allocated target, and non-allocated target species. Neither alternative, including the No-Action is expected to influence the magnitude or location of catch, or gear days, and thus is the no-action is expected to result in negligible impacts to physical environment/EFH and protected resources. There is increased reporting burden for vessels to fulfill the DSM requirements. The at-sea and dockside monitoring costs are currently being paid upfront by sectors, with a later reimbursement by NMFS. For small jig vessels, their share of the DSM burden is disproportionately higher than larger vessels, and as such, it is difficult for these vessels to cover the cost of this monitoring. The costs associated with this option would likely be short term negative impacts to these jig vessels. As with any measure that increases the operating costs of the fishery without guaranteeing a matching increase in revenue, this option may cause disruptions in daily living or changes in occupational opportunities if fishing practices need to be altered to make up for lost revenue. In general, higher level of monitoring is expected to lead to the positive social impacts of reducing regulatory discarding and

developing more accurate data which will inform management and ensure fairness in regulations. However, since Jig vessels land a minor percentage of the overall groundfish ACL, NMFS does not expect this alternative to cause a noticeable difference in regulatory discard, and in the development of more accurate data. Therefore, the No-Action alternative would likely have long term negligible to low-negative on sector participants and ports.

20. Seasonal Restrictions for the Eastern US/CA Haddock SAP (Year Round Access)

Multispecies vessels may fish in the Eastern US/CA Haddock SAP from August 1 through December 31 (50 CFR § 648.85(b)(8)(iv). To capture the maximum time requested this exemption proposes to allow sector vessels to fish in the Eastern U.S./Canada Haddock SAP from May 1st through April 30th (i.e., the entire fishing year) so long as the sector has available ACE. The Eastern U.S./CA Area Haddock SAP takes place in and near CAII. Only a small portion of the SAP (45 square nautical miles, representing only four percent of the total SAP area) is actually inside CAII (total area 2,650 square nautical miles). Sectors seek to increase their catch rates with this exemption by shifting effort in time and space. Since sector members would operate under an ACE, a minor increase in CPUE could result in fewer geardays. However, the ability to target specific stocks may also result in an increase in geardays. This assessment conservatively assumes the exemption will result in a minor increase in geardays.

Impacts to the physical environment/habitat/EFH would likely be negligible because any potential increase in geardays would be minor and the SAP is outside of any habitat areas of concern.

In contrast, impacts to allocated target species would be low negative. While the impact of this exemption would in part, be controlled by the ACEs for each allocated target stock, this exemption may increase fishing effort at a time and in areas where allocated target species, specifically haddock, aggregate to spawn.

The seasonal restriction on this SAP was put in place to lower cod and winter flounder catch rates. Catch of both of these species are limited by ACE. However, this exemption may increase disturbance to or harvest of actively spawning groundfish and/or disrupt spawning behavior. This would have a proportionally greater effect on stock production than harvest of non-spawning fish. However, the lower quality and lower price of spawning fish creates disincentive for vessels to target them. Several sectors suggested that access to the SAP be prohibited during March and April to be consistent with the Amendment 13 goal to protect spawning haddock. The most important haddock spawning grounds in the

Georges Bank-Gulf of Maine area are on eastern Georges Bank, Georges Bank haddock spawn between January and June, with peak activity usually during late March-April (Bigelow and Schroeder, 1953). Due to the potential to disrupt haddock spawning behavior, this exemption would have low negative impacts on allocated targets species.

Assuming a relatively constant ratio of non-allocated target species and bycatch to allocated target stocks, ACE would limit the potential for impacts to non-allocated target species and bycatch. Additionally, non-allocated species such as monkfish, dogfish, and skates have management measures in place to limit the catch of these species and control mortality. Therefore, impacts to non-allocated target species and bycatch would be negligible.

Impacts to protected resources are likely to be low negative as a result of this exemption. With some exceptions such as white sided and common dolphins, and pilot whales, large and small cetaceans and sea turtles are more prevalent within the operations area during the spring and summer. Additionally, harbor seals may be more likely to occur in the operations area between fall and spring, and hooded and harp seals are more likely to occur during the winter and spring. Atlantic sturgeon are more likely to occur in the operation area during spring and fall, although this area is not a concentration area for Atlantic sturgeon at any time of the year. Although it is difficult to predict, the ability to target specific stocks may result in minor increases in geardays, primarily trawl gear (excluding otter trawl), which could result in increased interactions with one or more protected species depending on where and when the use of

additional gear occurred. However, vessels would have to comply with weak link, sinking/neutrally buoyant ground line requirements of the ALWTRP. These measures help to reduce the likelihood and/or severity of large whale interactions, respectively, with sink gillnet gear. However, as mentioned, the majority of gear use is trawl in these SAPs.

This exemption should increase a sector's operational flexibility and efficiency. Therefore, this exemption would be expected to have low positive impacts on human communities.

Under the No Action Alternative for this exemption, vessels belonging to sectors would not be able to fish in the SAP from January 1 to July 31. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH and non-allocated target species and bycatch would be negligible. Impacts to protected resources and allocated target species would likely be low positive due to the potential for fewer interactions. Impacts to human communities would be low negative as sectors would not be given the additional flexibilities associated with allowing the additional fishing within the SAP.

21. Seasonal Restrictions for the CA II YT/Haddock SAP (Year Round Access)

Multispecies vessels can fish in the Closed Area II Yellowtail/Haddock SAP from July 1 through December 31 to target yellowtail flounder, and from August 1 through January 31 to target haddock (§ 648.85(b)(3)(iii)). While sectors were given exemption from trip limits for this SAP in Amendment 16, no adjustment was made to the seasonal restrictions. The exemption is intended to increase catch rates by allowing effort to be shifted in time and space. Since sector members would operate under an ACE, a minor increase in CPUE could result in fewer geardays. However, the ability to target specific stocks may also result in an increase in geardays. This assessment conservatively assumes the exemption will result in a minor increase in geardays.

Impacts to the physical environment/habitat/EFH would likely be negligible because any potential increase in geardays would be minor and the SAP is outside of any habitat areas of concern.

In contrast, impacts to allocated target species would be low negative. While the impact of this exemption would in part, be controlled by the ACEs for each allocated target stock, this exemption may increase fishing effort at a time and in areas where allocated target species, specifically haddock, are aggregating to spawn.

The seasonal restriction on this SAP was put in place to allow vessels to target denser populations of yellowtail flounder and haddock while avoiding cod in the summer and spawning groundfish in the spring. This exemption may increase disturbance to or harvest of actively spawning groundfish and/or disrupt spawning behavior. This would have a proportionally greater effect on stock production than harvest of non-spawning fish. However, the lower quality and lower price of spawning fish creates disincentive for vessels to target them. Several sectors suggested that access to the SAP be prohibited during March and April to be consistent with the Amendment 13 goal to protect spawning haddock. The most important haddock spawning grounds in the Georges Bank-Gulf of Maine area are on eastern Georges Bank, Georges Bank haddock spawn between January and June, with peak activity usually during late March-April (Bigelow and Schroeder, 1953). Due to the potential to disrupt haddock spawning behavior, this exemption would have low negative impacts on allocated targets species.

Assuming a relatively constant ratio of non-allocated target species and bycatch to allocated target stocks, ACE would limit the potential for impacts to non-allocated target species and bycatch. Additionally, non-allocated species such as monkfish, dogfish, and skates have management measures in place to limit the catch of these species and control mortality. Therefore, impacts to non-allocated target species and bycatch would be negligible.

Impacts to protected resources are likely to be low negative as a result of this exemption. With some exceptions such as white sided and common dolphins, and pilot whales, large and small cetaceans and sea turtles are more prevalent within the operations area during the spring and summer. Additionally, harbor seals may be more likely to occur in the operations area between fall and spring, and hooded and harp seals are more likely to occur during the winter and spring. Atlantic sturgeon are more likely to occur in

the operation area during spring and fall, although this area is not a concentration area for Atlantic sturgeon at any time of the year. Although it is difficult to predict, the ability to target specific stocks may result in minor increases in geardays, primarily trawl gear (excluding otter trawl), which could result in increased interactions with one or more protected species depending on where and when the use of additional gear occurred. However, vessels would have to comply with weak link, sinking/neutrally buoyant ground line requirements of the ALWTRP. These measures help to reduce the likelihood and/or severity of large whale interactions, respectively, with sink gillnet gear. However, as mentioned, the majority of gear use is trawl in these SAPs.

This exemption would increase a sector's operational flexibility and efficiency with by having the opportunity to fish year-round in the SAP. Therefore, this exemption would have low positive impacts on human communities.

Under the No Action Alternative for this exemption, vessels belonging to sectors would not be able to target yellowtail from the SAP between January 1 to May 31 or haddock in the SAP between February 1 to July 31. Relative to the approval of the exemption, impacts to physical environment/habitat/EFH and non-allocated target species and bycatch would be negligible. Impacts to protected resources and allocated target species would likely be low positive due to the potential for fewer interactions. Impacts to human communities would be low negative as sectors would not be given the additional flexibilities associated with allowing the additional fishing within the SAP.

22. Multi-Broad Stock Area (BSA) Exemption When Observer Onboard

This exemption would allow fishing in the SNE/MA winter flounder stock area and GOM or GB when winter flounder is onboard the vessel, if either a NEFOP observer or an at-sea monitor is onboard. Data collection protocols include documentation of catch (both landings and discards), as well as stock area, which could provide the data necessary to differentiate the catch of winter flounder and correctly apportion the catch of the winter flounder onboard to the appropriate stock area.

The requirement to carry an observer on these trips would be likely to result in an accurate accounting of catch. It may be possible for vessels to increase their efficiency if they can more rapidly catch ACE or non-allocated stocks as a result of this exemption. However, overall ACE levels would not be affected from this exemption and would act as a mortality control. It is not expected that fishing practices or gear use would be likely to change as a result of this exemption. Therefore, there would likely be a negligible impact on target and non-target species. If fishing is slightly more efficient under the exemption, it could result in a minor decrease in geardays. Impacts to the physical environment/habitat/EFH and protected resources would likely be negligible because the required observer would allow NMFS to correctly apportion catch, and any minor changes in geardays are not expected to substantially change the nature of impacts to protected resources or the physical environment/habitat/EFH. By increasing operational flexibility this exemption would likely increase the expected profits of sector fishermen. As a result, the resulting impacts to human communities are likely to be low positive. However, because this exemption would require 100 percent observer or at-sea monitoring coverage and NMFS has limited funding to pay for observer and at-sea monitoring coverage, NMFS is proposing that industry fund 100% of the at-sea monitoring expenses when a vessel utilizes this exemption. Vessels interested in utilizing this exemption on a trip will not have the opportunity to request a federally-funded observer or at-sea monitor. The requirement for industry funding of 100 percent observer coverage would be a low negative impact, as it is an added cost to industry. It is estimated that vessels would have to pay around $500 dollars/day to cover at-sea monitoring expenses. These include the wage for the monitor while on board and any overhead costs incurred by company providing at-sea monitoring services. NMFS has little data to accurately predict the number of trips that may be taken subject to this provision, and as such, it is impossible to quantify the added burden to industry as a result of this requirement. Overall, impacts to human communities are thought to be low positive in the short term, as sectors would not likely take these trips otherwise.

Under the No Action Alternative for this exemption, sector vessels would continue to be prohibited from fishing within the SNE/MA winter flounder stock area when GOM or GB winter flounder is onboard the

vessel. As stated above, the minor decrease in gears days that may be realized under the action alternative would not be realized under the no action. However, it does not seem likely that this minor change in gear days that could result from increased efficiencies would negatively impact physical environment/habitat/EFH and protected resources – thus impacts would likely be negligible. Impacts to allocated target species and non-allocated target species and bycatch are expected to be negligible relative to the approval of the exemption as observers would ensure that ACE is correctly accounted for. The additional flexibilities and efficiencies gained as a result of the action alternative would not be realized under no action, and as such, impacts to human communities would likely be low negative compared to the approval of the exemption.

23. 6.5 inch Trawl Mesh Size Requirement to Target Small Mesh Species While on a Sector Trip, When Trip is Observed

Sectors have requested an exemption that would allow their vessels to possess and use small mesh and large mesh, on a single trip, while in possession of allocated multispecies, provided a NEFOP observer or an at-sea monitor is assigned to the trip. Any allocated multispecies would count against the sector's ACE through landings or recorded discards. The goal is to allow a vessel to engage in exempted fisheries while on a sector trip, to increase efficiency of fishing effort and gross revenue per trip, while decreasing vessel operating costs.

Since any groundfish caught using this exemption would count against a sector's ACE, the sector may slightly increase the rate at which it obtains its ACE compared to the No Action. This is because groundfish on small-mesh multispecies trips are discarded and not counted against the ACE. Therefore, fishing may be slightly more efficient under the exemption and could result in a minor decrease in geardays. This exemption is not likely to increase the number of small-mesh tows taken. As such, impacts to the physical environment/habitat/EFH and protected resources would be likely be negligible because the change in mesh size is not expected to change the nature of impacts to protected resources or the physical environment/habitat/EFH and the potential decrease in geardays is minor.

Impacts to allocated target species, non-allocated target species and bycatch are expected to be low negative to negligible. This exemption could result in greater retention of smaller legal or discard of sub-legal groundfish. While sector vessels fish under an ACE and all landings of allocated stocks are counted against that ACE, minimum mesh sizes have been set by NMFS to reduce discard mortality and allow greater escapement of sub-legal groundfish, with the purpose of expanding the stock age structure and increasing yield-per-recruit and spawning stock biomass. The use of the small-mesh combined with the ability to retain groundfish would be inconsistent with the intent of improving stock age structures. However, non-allocated target species and bycatch have management measures in place to limit their catch and control mortality, with which sector vessels would still be required to comply. In addition, there is a very small number of observers that are available to observe small mesh tows. Therefore, any negative impacts from this exemption would be greatly mitigated by the available observers, and thus, the number of trips that may be taken pursuant to this exemption.

By increasing operational flexibility this exemption would likely increase the expected short run profits of sector fishermen. However, if disturbance to stock age structure slowed stock rebuilding efforts, long run profits may decrease. The resulting impacts human communities are likely to be low positive but could possibly be low negative in the long term. However, because this exemption would require 100 percent observer or at-sea monitoring coverage and NMFS has limited funding to pay for observer and at-sea monitoring coverage, NMFS is proposing that industry fund 100% of the at-sea monitoring expenses when a vessel utilizes this exemption. Vessels interested in utilizing this exemption on a trip will not have the opportunity to request a federally-funded observer or at-sea monitor. The requirement for industry funding of 100 percent observer coverage would be a low negative impact, as it is an added cost to industry. It is estimated that vessels would have to pay around $500 dollars/day to cover at-sea monitoring expenses. These include the wage for the monitor while on board and any overhead costs incurred by company providing at-sea monitoring services. NMFS has little data to accurately predict the number of trips that may be taken subject to this provision, and as such, it is impossible to quantify the

added burden to industry as a result of this requirement. Overall, impacts to human communities are thought to be low positive in the short term, as sectors would not likely take these trips otherwise.

Under the No Action Alternative for this exemption, sector vessels would have to use small-mesh and large-mesh on separate trips. Relative to the approval of the exemption, impact to physical environment/habitat/EFH and protected resources would be negligible as there would be little change in geardays. Impacts to allocated target species and non-allocated target species and bycatch would be low positive to negligible because the rationale of improving stock age structure would be maintained, however the small number of possible trips lessens the potential impacts from this exemption. Impacts to human communities would likely range from low negative to low positive.

24. EFP-like Exemption for Sampling

This exemption would allow a federally permitted fishing vessel that is accompanied by an eligible research technician to temporarily retain fish that are not compliant with applicable fishing regulations to collect data (e.g., lengths and weights of discards).

All sampling work would occur during normal fishing operations. Therefore this exemption is not expected to change fishing behavior. The sampled fish will be accounted for as commercial fishing mortality and will be attributed to the appropriate commercial fishing quota. This sampling exemption is not extended to species protected under the Endangered Species Act or Marine Mammal Protection Act. Additionally, all non-compliant fish would be returned to the sea as soon as practicable following data collection. While it is possible that a minor increase in discard mortality may result from the temporary retention of discarded catch, such mortality is minimal in the context of the overall fishery. For these reasons, this exemption would result in negligible impacts to the physical environment/habitat/EFH, allocated target species, non-allocated target species, and protected resources. Likewise, the no action alternative would likely have negligible impacts on the above VECs.

This exemption would have low positive impacts on human communities. Sectors requesting this exemption have developed their own monitoring programs for research purposes. Fish that would normally be discarded are briefly retained to be measured (length, weight, etc.) prior to be returned to the water. The findings from this research could contribute to stock assessment or other fisheries science and can be used to improve the health and productivity of fish stocks. The additional science would not be available to these sectors under the no action alternative, and as such, impacts would be low negative relative to the approval of the exemption.

25. 4.5-inch Mesh Size or Greater for Directed Redfish Trips

This exemption would allow sector vessels to target redfish with codend mesh greater than or equal to 4.5 inches (11.4-cm) but less than 6.5 inches (16.5-cm) in an area of the Gulf of Maine. The exemption seeks to increase CPUE by retaining a greater proportion of the fish in the trawls codend. Because sector members would operate under an ACE, a minor increase in CPUE would result in fewer geardays.

Impacts to physical environment/habitat/EFH would likely be low positive because there would be a minor increase in CPUE, and a reduction in trawling geardays for redfish.

The exemption could result in greater retention of sub-legal groundfish. While sector vessels fish under an ACE and all landings of allocated stocks are counted against that ACE, NMFS set minimum mesh sizes to reduce discard mortality and allow greater escapement of sub-legal groundfish, with the purpose of expanding the stock age structure and increasing yield-per-recruit and spawning stock biomass. However, certain provisions of this exemption would mitigate some of the adverse impacts of this exemption. The minimum landings threshold and the maximum discard allowance would limit the impact of the reduced mesh size on the non-redfish groundfish stocks. These provisions would ensure that the exemption is being used to target redfish and not other groundfish stocks. Therefore, overall impacts to allocated target species are expected to be low negative.

The exemption could also result in greater retention of non-allocated target species and bycatch.Spiny dogfish was the largest component of the bycatch observed in the REDNET Component 2 report (Kanwitt 2012). Impacts to non-allocated target species and bycatch are expected to be low negative. However, non-allocated target species and bycatch have management measures in place to limit their catch and control mortality, with which sector vessels would still be required to comply.

Assuming a relatively constant ratio of non-allocated target species and bycatch to allocated target stocks, ACEs would likely limit the potential for impacts to non-allocated target species and bycatch.

The minimum landings threshold and the maximum discard allowance would also limit the impact of the reduced mesh size on the non-allocated target species and bycatch. These provisions would ensure that the exemption is being used to target redfish and not non-allocated target species and bycatch. Therefore, both would provisions would limit catch of non-allocated target species and bycatch.

Impacts to protected resources would be negligible because the change in mesh size is not expected to change the nature of impacts to protected resources and the potential decrease in geardays is minor.

In order to utilize the mesh-size exemption, a fisherman would potentially have to purchase a new codend with mesh size under 6.5 inches, which is an upfront cost. A 4.5-inch cod end for a vessel with an engine of 400 HP, or greater, would be $1,815 (O'Rourke, personal communication). If a vessel purchased an entire new net specialized to target redfish, costs would be greater. Under this exemption, sectors vessels with an approved industry-funded at-sea monitoring program would forfeit the opportunity to have a randomly-assigned federally funded observer or at-sea monitor on a declared redfish trip, and would be required to pay for an at-sea monitor. At-sea monitors cost approximately $662 per sea day. This increase in costs reduces the net revenue per trip. Accordingly, it may take a vessel more trips to recoup upfront costs invested.

By increasing operational flexibility this exemption would likely increase the expected short run profits of sector fishermen. iI the exemption was revoked, as a result of the thresholds being met, a fisherman may not be able to recoup the costs and short run costs would exceed revenues. If disturbance to stock age structure slowed stock rebuilding efforts, long run profits may decrease. The resulting impacts human communities are likely to be low positive but could possibly be low negative in the long term. However, because this exemption would require 100 percent observer or at-sea monitoring coverage and NMFS has limited funding to pay for observer and at-sea monitoring coverage, NMFS is proposing that industry fund 100% of the at-sea monitoring expenses when a vessel utilizes this exemption. Vessels interested in utilizing this exemption on a trip will not have the opportunity to request a federally-funded observer or at-sea monitor. It is estimated that vessels would have to pay around $500 dollars/day to cover at-sea monitoring expenses. These include the wage for the monitor while on board and any overhead costs incurred by company providing at-sea monitoring services. The requirement for industry funding of 100 percent observer coverage would be a low negative impact, as it is an added cost to industry. NMFS has little data to accurately predict the number of trips that may be taken subject to this provision, and as such, it is impossible to quantify the added burden to industry as a result of this requirement. Therefore, compared to the No Action Alternative, the resulting impacts on human communities are likely to be low positive, but could be low negative if costs are not recouped.

Table 5.1.6-1
Summary of Direct and Indirect Effects of the Alternatives

	Valued Ecosystem Components (VECs)					
	Physical Environment	**Biological Environment**			**Human Communities**	
ALTERNATIVE		**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Alt 1 – FY 2013 Sector Operations Plans	Negl	Negl	Negl	Negl	L+	L+
Alt 2 – FY 2013 Sector Exemptions						
120 day gillnet block	Likely Negl	Negl	Negl	L-	L+	L+
20-day spawning block	Likely Negl	Negl	Negl	L-	L+	L+
Gillnet limit	Likely Negl	Likely Negl	Likely Negl	L-	L-	L+
Hauling another vessels gillnet gear	Likely Negl	Likely Negl	Likely Negl	Likely Negl	L-	L+
50-net limit with DAS	Negl	Negl	L-	Negl	L+	L+
Limit on # of hooks	Negl	Negl	Likely Negl	Negl	L-	L+
DAS leasing size and HP restrictions	Negl	Negl	Negl	Negl	L+	L+
GOM Sink Gillnet Mesh Size	Likely Negl	Negl	Likely Negl	L-	L+	L+
Discarding	Negl	Negl	Likely Negl	Negl	L+	L+
Daily Catch Reporting	Negl	Negl	Negl	Negl	L+	L+

Table 5.1.6-1 (continued)
Summary of Direct and Indirect Effects of the Alternatives

	Valued Ecosystem Components (VECs)					
	Physical Environment	Biological Environment			Human Communities	
ALTERNATIVE		**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Gear Requirements in the US/CA Area	L-	Negl	Negl	Likely Negl to L-	L+	L+
Maintain VMS at dock	Negl	Negl	Negl	Negl	L+	L+
DSM Requirements for Vessels Fishing West of 72 deg., 30 min., west longitude	Negl	Likely Negl	Likely Negl	Negl	Negl to L+	Negl to L+
DSM Requirements for monkfish trips in SFMA	Negl	Likely Negl	Likely Negl	Negl	Negl to L+	Negl to L+
DSM Requirements for Handgear-A sector vessels	Negl	Negl	Negl	Negl	Negl to L+	Negl to L+
Fishing inside and outside CA I Hook Gear Haddock SAP while on the same trip	Negl	Negl	Negl	Negl	L+	L+
Hauling another vessels hook gear	Likely Negl	Likely Negl	Likely Negl	Likely Negl	L+	Possible L-
Declare intent to fish in SAP/CA from dock	Negl	Negl	Negl	Negl	L+	L+

Table 5.1.6-1 (continued) Summary of Direct and Indirect Effects of the Alternatives						
	Valued Ecosystem Components (VECs)					
	Physical Environment	Biological Environment			Human Communities	
ALTERNATIVE		**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
DSM Requirements for Vessels Using Jig Gear	Negl	Likely Negl	Likely Negl	Negl	Likely Negl to L+	Likely Negl to L+
Seasonal Restrictions for Eastern US/Canada Haddock SAP	Negl	L-	Negl	Likely L-	L+	L+
Seasonal Restrictions for CA II YT/Haddock SAP	Negl	L-	Negl	Likely L-	L+	L+
Multi-BSA Exemption when Observer on Board	Likely Negl	Likely Negl	Likely Negl	Likely Negl	Likely L+	Likely L+
6.5 Inch Trawl Mesh size to target small mesh multispecies	Likely Negl	L- to Negl	L- to Negl	Likely Negl	Likely L+, possible L-	Likely L+, possible L-
EFP-like exemption for sampling	Negl	Negl	Negl	Negl	L+	L+
4.5-inch Mesh Size or Greater for Directed Redfish Trips	L+	L-	L-	Negl	Likely L+, possible L-	Likely L+, possible L-
Summary of Impacts for Alternatives 1, and 2	**Negl**	**Negl**	**Negl**	**Likely L-**	L+	L+

5.1.5 Impact Summary

Table 5.1.6-1 provides a summary of conclusions regarding direct and indirect impacts that would occur as a result of the various alternatives under consideration. Approval of sector Operations plans (Alternative 1) would generally have negligible impacts to the physical environment/habitat/EFH, allocated target species, non-allocated target species/bycatch, and protected resources. Alternative 1 would have positive impacts on human communities.

If the No Action Alternative is selected for Alternative 1, sectors would not exist in FY 2013. Relative to the approval of the alternatives, the change in impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protected resources would be negligible. Under the No Action for Alternative 1 impacts to, human communities would be negative.

Under Alternative 2, sectors have requested 26 exemptions from the Northeast Multispecies regulations for FY 2013 (Table 3.3.2-1). The impacts of these exemptions on the physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protected resources range from negative to negligible. The impact on human communities is generally positive except where exemptions may slow stock rebuilding efforts or where the use of gear to hold ground could increase inter-vessel conflicts. If the No Action Alternative is selected for individual sector requested exemptions, all impacts associated with approval of the exemption would be foregone. For individual impacts of the No Action Alternative for each exemption please refer to Section 5.1.5.

5.2 CUMULATIVE EFFECTS ANALYSIS

The Center for Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Part 1508.25) reference the need for a cumulative effects analysis (CEA). CEQ regulations define cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other action." The purpose of a CEA is to consider the effects of the Proposed Action combined with the effects of many other actions on the human environment. The CEA assesses impacts that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective, but, rather, the intent is to focus on those effects that are truly meaningful. The CEA baseline condition consists of the present condition of the VECs plus the combined effects of past, present and reasonably foreseeable future actions which are described below. The present condition of the VECs is described in the affected environment (Section 4).

This CEA assesses the combined impact of the direct and indirect effects of sector operations plans and FY 2013 proposed exemptions analyzed for all 17 sectors with the impact from the past, present, and reasonably foreseeable future fishing actions. Additionally, it assesses factors external to the multispecies fishery that affect the physical, biological, and socioeconomic resource components of the groundfish environment. This analysis focuses on the VECs (see below) and compares the impacts of FY 2013 operations plans and associated exemptions for all sectors (Proposed Action) with the impacts of fishing under the common pool (No Action Alternative) as currently regulated by the Northeast Multispecies FMP and subsequent actions. The impacts of common pool fishing were previously assessed in the EIS and EAs associated with these actions. The final rule for Amendment 16 to the Northeast Multispecies FMP took effect on May 1, 2010. The Final EIS for Amendment 16 addresses the impacts of common pool fishing.

Valued Ecosystem Components (VECs): The CEA focuses on VECs specifically including:

- Physical environment/habitat/EFH
- Allocated target groundfish stocks;
- Non-allocated target species and bycatch;
- Protected resources; and
- Human communities (ports of sector operation and sector members).

Temporal and Geographic Scope of the Analysis: The temporal range considered for the habitat, allocated target species, non-allocated target species and bycatch, and human communities VECs, extends from 2004, the year that Amendment 13 was implemented, through April 30, 2014, the end of FY 2013. While this CEA considers the effects of actions prior to Amendment 13 (see Amendment 16 for a full cumulative effects analysis), the CEA focuses primarily on Amendment 13 and subsequent actions. Amendment 13 implemented the sector process and included major changes to management of the groundfish fishery, including substantial effort reductions. This CEA also emphasizes Amendment 16 since it expanded sector use and management regulations as well as added stricter management measures that apply to the common pool.

The temporal range considered for the protected resources VEC begins in the 1990's when NMFS started generating stock assessments for marine mammals and developed recovery plans for sea turtles that inhabit waters of the U.S. EEZ.

The CEA examines future actions through April 30, 2014. This is the end of FY 2013 and the period of approval for this action. This EA considers the approval of sector operations plans for one year. Therefore, the cumulative effects will need to be reassessed as part of the NEPA action taken for FY 2014.

The geographic scope considered for cumulative effects to physical environment/habitat/EFH, allocated target species, and non-allocated target species and bycatch consists of the range of species, primary ports, and geographic areas (habitat) discussed in Section 4.0 (Affected Environment). The range of each endangered and protected species as presented in Section 4.5 is the geographic scope for that VEC. The geographic scope for the human communities consists of those primary port communities from which sector vessels originate and/or land their catch.

5.2.1 Summary of Direct and Indirect Impacts of Proposed Action

Table 5.1.6-1 summarizes the direct and indirect effects on the VECs from the FY 2013 operations plans (Alternative 1) and sector requested exemptions (Alternative 2) compared to what the impacts would be if vessels remained or returned to the common pool.

The effects of sector operations plans (Alternative 1would be negligible for physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch, and protected resources. Impacts to sector ports and participants would be positive for Alternative 1.

The impacts of requested exemptions (Alternative 2) on physical environment/habitat/EFH would be primarily negligible with the exception of exemptions expected to increase trawl geardays. These exemptions, which include the use of 6-inch mesh when targeting redfish and the relaxation of gear requirements in the U.S./Canada Area, would result in low negative or likely negative impacts to the physical environment.

The impacts of requested exemptions (Alternatives 2) on allocated target resources were also found to be generally negligible with these exceptions. Negative impacts would be associated with both exemptions to access SAPs year round because, although ACEs provide the overall control on allocated target stock

mortality, there is the potential for low negative impacts from fishing on spawning aggregations and the disruption of spawning behavior. Additionally the use of 6-inch mesh to target redfish could result in a low negative impact to allocated target species if the smaller mesh size results in greater catch of sub-legal groundfish. The exemption from the 6.5 Inch Trawl Mesh size to target small mesh multispecies could result in greater retention of smaller legal or discard of sub-legal groundfish. However, any negative impacts from this exemption would be greatly mitigated by the available observers, and thus, the number of trips that may be taken pursuant to this exemption.

With respect to non-allocated target species and bycatch, negative impacts may be associated with the exemption to the gillnet limit exemption because vessels fishing under current regulations are limited in the number of gillnets they may deploy: 100 gillnets (of which no more than 50 can be roundfish gillnets) in the GOM RMA; 50 gillnets in the GB RMA; and 75 gillnets in the SNE/MA RMAs. Under a requested exemption that limit would be increased to 150 gillnets per permit in all RMAs. Use of 6-inch mesh to target redfish could result in a low negative impact to non-allocated target species and bycatch if the smaller mesh size results in greater retention of sub-legal groundfish and other smaller non-allocated target species. The exemption from the 6.5 Inch Trawl Mesh size to target small mesh multispecies could result in greater retention of smaller legal or discard of sub-legal groundfish. However, any negative impacts from this exemption would be greatly mitigated by the available observers, and thus, the number of trips that may be taken pursuant to this exemption. The remaining sector requested exemptions would generally have negligible impacts on non-allocated target species and bycatch.

For protected species, an exemption from the 120-day gillnet block could allow vessels a greater number of days on the water potentially during the summer months when more protected species are present. A similar concern exists for an exemption from the 20-day spawning block. Although the change in geardays would be negligible, vessels would be permitted to fish in areas of increased abundance of fish where protected species may be present in larger numbers. The exemption to allow up to 150 gillnets in the water per permit, and the GOM sink gillnet program would also increase the likelihood of gear interactions with protected species due to the potential for increased geardays. The gear requirements in the U.S./Canada Area could result in a low negative impact to protected resources because trawl gear can be detrimental to protected resources. Concerning harbor porpoise, although there are several proposed exemptions that may result in an increase in gillnet geardays, the HPTRP helps to avoid the likelihood of significant cumulative impact because the New England portion of the HPTRP pertains to all fishing with sink gillnets and other gillnets capable of catching multispecies in New England waters from Maine through Rhode Island east of 72° 30’ W longitude. It includes time and area closures, some of which are complete closures. Others are closures to multispecies gillnet fishing unless pingers are used in the prescribed manner. The HPTRP also establishes "consequence closure areas,” (these consequence closures will only be enacted if specified harbor porpoise bycatch rates are exceeded) in New England, which are specific areas of historically high harbor porpoise bycatch that will seasonally close if bycatch rates averaged over two consecutive management seasons indicate that harbor porpoise takes are greater than a specified bycatch rate. For more information on the HPTRP, please see the following NMFS website: http://www.nero.noaa.gov/Protected/porptrp/plan/index.html

Other notable impacts would occur in ports and to sector participants. The majority of exemptions would have low positive impacts to both of these VECs due to increased operational flexibility, increased profits and/or decreased costs. By removing the limitations on vessel effort (amount of gear used, number of days declared out of fishery, trip limits and area closures) these exemptions help to create a more simplified regulatory environment. Additionally, each exemption that removes the management control on effort will allow fishing ability to rise to expectations and reduce frustration.

Somewhat differently, exemptions to the gillnet limit, hauling another vessel’s gillnet gear, hauling another vessel’s hook gear and hook limits would have two effects: increased flexibility would increase revenues to sector participants (a positive impact), gear could be used to hold ground resulting in conflicts between fishermen (a negative impact). These two divergent effects are represented as a positive impact to sector participants but negative impacts to the ports where some of the conflicts may play out.

The exemptions from DSM requirements would likely have positive social impacts for the portion of the fleet to which it is directed. If these vessel operators are not required to pay for dockside monitoring, they can run more profitable trips and have more occupational opportunities. These trips are likely targeting monkfish, skates, and dogfish, and as such, this exemption may allow these vessels to more freely fish for these stocks, without the increase cost burden of DSM. In general, a lower level of monitoring may lead to the negative social impacts of regulatory discard, and less accurate data to use in management to ensure fairness in regulations. However, since these vessels land a minor percentage of the overall groundfish ACL, NMFS does not expect this alternative to cause a noticeable difference in regulatory discard, and in the development of more accurate data to inform management and ensure fairness in regulations. Overall, these DSM exemptions would likely result in a negligible to low positive impact on human communities.

Both exemptions to access SAPs year round and the exemption to use 6-inch mesh to target redfish could have likely low positive impact on human communities in the short run but may have negative long run impacts if exemption related impacts to spawning aggregations of fish slow stock rebuilding efforts. Additionally, if increased fishing activity in the proposed GOM rolling closure blocks were to increase bycatch of harbor porpoises in the HPTRP that exemption may result in further negative impacts to human communities.

The exemption from the 6.5 Inch Trawl Mesh size to target small mesh multispecies could increase operational flexibility and expected short run profits of sector fishermen. However, if disturbance to stock age structure slowed stock rebuilding efforts, long run profits may decrease.

Overall, the proposed action for Alternatives 1and 2 would result in negligible impacts on physical environment/habitat/EFH, allocated target species, and non-allocated target species, likely low negative impacts to protected resources, and low positive impacts to sector ports and participants.

5.2.2 Past, Present, and Reasonably Foreseeable Future Actions

Detailed information on the past, present, and reasonably foreseeable future actions that may impact this action can be found below.

5.2.2.1 Aggregate Sector Impacts

The amount of fish allocated to the commercial groundfish fishery, and sectors in the form of an ACE, as set in the annual specifications, likely provides for the greatest influence on trips, catch, and geardays. Additionally, sector operations plans are intended to ensure that operations do not result in new negative impacts to the physical environment and/or protected resources. The operational flexibility afforded to sectors (i.e., exemptions to increase fishing opportunities) may allow for an increase in geardays from targeting under-exploited stocks. However, the analyses in this document are made assuming the entire ACE could be harvested. In other words, an increase in catch from the previous year, as long as it does not exceed the ACE, should not create an unanticipated impact. It is also possible that increased efficiency resulting from sector exemptions could also act to increase catch per unit effort and reduce days fished.

Data (see Table 4.1.5-2) from FY 2009 through FY 2011 (trips targeting groundfish or using a groundfish or monkfish DAS), broken out by gear type, show a major reduction in trips (aside from longline), and catch (aside from trawl), while geardays have increased for gillnet and slightly for trawl vessels. While this is inconsistent with data from the previous year (where gear days decreased along with catch), an increase in geardays could indicate that it is becoming harder to find stocks, and therefore, vessels are having to fish harder, or longer. As discussed in the FY 2012 EA, and in this document, the approval of sector exemptions in the past may have contributed to greater efficiencies that allow for increased exploitation of ACE, and non-allocated stocks. This may account for the increase in geardays in the gillnet fishery.

The FY 2013 sector-specific harvest rules, and sector-specific exemptions, have been discussed in Section 5.1 and are incorporated into the sector-specific impacts represented in Table 5.1.6-1. In aggregate, if all alternatives were adopted, they would have negligible impacts on physical environment/habitat/EFH, allocated target species, and non-allocated target species and bycatch. While the aggregate impact of adopting all alternatives would be low negative for protected resources, aggregate impacts to human communities would be low positive.

Impacts related to general sector operations are considered below and summarized in Table 5.2.2-1.

Proportion of ACL

The total amount of groundfish that is permitted to be caught by the commercial multispecies fleet is called the annual catch limit (ACL). FY 2013 is the fourth year in which ACLs will be set for most stocks, in order to be in compliance with revisions to the Magnuson-Stevens Act. Management measures in Amendment 16 to the Northeast Multispecies FMP have been set to reduce exploitation rates of managed stocks by roughly 40 to 60 percent (Table 4 of Amendment 16) from FY 2008 in order to achieve the ACLs for the multispecies stocks. AMs have been put into place to ensure that landings by common pool and sector vessels do not exceed the ACL. Further, management rules since Amendment 16 include an emergency rule that was finalized on July 20, 2010, to revise the Pollock ACL. FW 45 implemented, and FW47, as proposed, contain several measures which would further expand or alter sector management.

Based on the FY 2012 sector rosters, roughly half the permits in the Northeast Multispecies fishery were enrolled in sectors, while the other half remained in the common pool. In FY 2012the permits enrolled in sectors accounted for more than 99 percent of the historical fishing effort. The proportion of ACL that is linked to the permits enrolled in sectors (i.e., potential sector contribution) was more than 90 percent for each Northeast groundfish stock, with the exception of SNE/MA yellowtail flounder (more than 70 percent in sectors); however, as discussed in Section 5, we assume for the purpose of this analysis that 100% of the NE multispecies ACL is allocated to sectors. The ACE for each sector is determined by multiplying the summed PSC of all members by the overall ACL for each stock. The proportion of ACLs in sectors and the common pool is illustrated in Figure 5.2.2-1 for FY 2012. We expect little change for FY 2013, and the roster deadline for FY 2013 has been extended until March 29, 2013, such that it is not available for inclusion in the EA. Although the roster data provides some baseline information on the fishery, as stated earlier in the EA, this sector EA assumes that 100 percent of the fishing effort could occur in sectors.

The potential impacts of the proportion of ACL in sectors is likely to be negligible to physical environment/habitat/EFH, allocated target stocks, non-allocated target species and bycatch, and protected resources, since there would likely be little potential for change in the potential amount of catch, which would be controlled by ACEs for each sector. However, the catch may increase for abundant stocks such as haddock because of the increased flexibility to selectively target these stocks with gear specifically designed for this purpose. Sector participants would likely benefit from the ability to fish their ACE, which represents the majority of the ACL for the fleet, without effort control restrictions. This added flexibility, which would result in increased revenues, would result in low positive impacts to the sectors' ports.

Figure 5.2.2-1 Percentage of Allocated Target Stocks in All Sectors and the Common Pool for FY 2012

Inter-Sector Transfer of ACE

Each sector is able to adjust its allocations by trading ACE with other sectors to facilitate targeted fishing of underutilized stocks and take advantage of various financial opportunities to maximize profits. These ACE transfers may occur during the fishing year and up to two weeks after the end of the fishing year in order to "provide[s] a limited opportunity for a sector to quota balance in the instances that ACE was inadvertently exceeded." These provisions do not provide for the permanent transfer of sector shares, but allow sectors to avoid inadvertent overages and avoid potential enforcement action or penalties if ACE is exceeded. The ability to transfer ACE within an allotment period results in a net increase of zero, having no impact on achieving target mortality rates. In addition, this provision provides a disincentive to discard catches that may exceed the ACE, and the ability to carry-over ACE into the following fishing year discourages fishing right up to the maximum amount allowed (Sanchirico et al. 2006). This provision would have a low positive impact on human communities because it would allow some flexibility in covering inadvertent overages of a sector's ACE and provides an option to avoid enforcement actions and/or penalties, and greater utilization of allocations, resulting in more landings. Further, the ability to trade ACE would allow sectors to acquire additional fishing opportunities that would result in a positive impact on human communities. This would potentially result in a greater proportion of allocated ACE being caught because sectors unable to fully utilize their ACE could trade ACE to sectors with the harvesting capacity that would otherwise go unused. The impacts to the physical and biological environments are likely negligible, since this provision would allow for minor deviations from a sector's given ACE.

Consolidation of Permits

Most sectors have indicated that some of their sector members would not actively fish. While it initially appears that fewer vessels would be fishing as a result of sectors, many of these permits/vessels were previously inactive because of the DAS Leasing Program and mortality controls established to rebuild groundfish stocks. In FY 2004, Amendment 13 brought the opportunity for fleet consolidation through the implementation of the DAS Leasing Program and, to a lesser extent, from the DAS Transfer Program. Accordingly, additional fleet-wide consolidation would take place only to the extent that additional consolidation occurs beyond that which resulted from the leasing and transfer programs in past years or would happen under those programs in FY 2013.

The severity of the social implications that result from sector operations are difficult to predict. NMFS cannot predict the exact consolidation because sector rosters may change and members currently enrolled in sectors are still able to withdraw to the common pool through April 30, 2013. Depending on the fleet

composition of the sectors and the distribution of ACE amongst sectors, it is possible that specific gear types or geographic regions could be disproportionately impacted. Seven sectors expect that, compared to FY 2012, there would be little to no change from the consolidation that previously occurred within the sector during FY 2012. In this case, most sectors anticipate that a member who owns multiple permits and fished all those permits on a single hull and will now continue to fish the harvest share contributed by all of those permits on the same single hull, resulting in no additional consolidation. Information about consolidation/redirection from the Tri State Sector was not available at the time this EA was finalized. Eight sectors reported that they anticipated a smaller percentage of permits attached to active fishing vessels in FY 2013 as compared to FY 2012. NEFS 4 is a lease only sector and notes in their operations plan that their leases will help to minimize consolidation in the NEFS 2 & NEFS 3 sectors. Please see Section 4.6.7.3 for a discussion of past consolidation in the groundfish fishery. Based on the sector's minor consolidation predictions it is anticipated that there would be negligible impacts to all VECs associated with permit consolidation.

Redistribution of Effort

On a related note, fishing effort may be redistributed from the Northeast Multispecies fishery into other fisheries due to improved fishing efficiency, selectivity, or consolidation among vessels that historically fished for Northeast multispecies. Under this scenario, it is possible that fishing effort could be redistributed amongst different gear types and/or different fishing areas, or that the fleet composition could change. It is likely that effort would shift towards fisheries open access fisheries that are managed under effort controls or into fisheries that are not overfished or undergoing overfishing. Two examples to illustrate these scenarios are provided:

1. If gillnetters are able to successfully target haddock, an increase in gillnet effort may result because of the abundance of haddock and the replacement of broad effort controls with stock-specific mortality controls.
2. Vessels within sectors that also have lobster permits could decide to lease their multispecies quota to larger vessels and instead target American lobster stocks with gear not capable of catching Northeast multispecies.

It is difficult to predict how the social, economic, and biological impacts of effort shifts caused by sectors would compare to, or interact with, the social, economic, and biological impacts of effort shifts from the increased effort controls on the common pool under Amendment 16 and subsequent frameworks. However, data indicates that vessels enrolled in sectors increased their fishing effort in both the American lobster and northern shrimp fisheries. The opportunity for this type of effort redistribution has existed since implementation of the DAS Leasing and DAS Transfer Programs, which were implemented in Amendment 13 (69 FR 22906, 4/27/2004). Accordingly, additional redistribution of effort is likely only to the extent that additional consolidation occurs beyond that which resulted from the DAS Leasing and Transfer Programs. In other words, it is likely that higher rates of consolidation would lead to a greater redistribution of effort. How much effort is redistributed by individuals enrolled in a sector compared to what is anticipated within the common pool is difficult to predict. Most sectors predict that there would be no additional consolidation of permits as a result of sector operations, and consequently there would be no further expected redistribution of effort due to the operation of sectors. Based on this prediction, it is anticipated that there would be negligible impacts to all VECs associated with redistribution of effort due to ongoing sector operations. However, further reductions in groundfish ACE may result in effort shift into other fisheries. Information about consolidation/redirection from the Tri State Sector was not available at the time this EA was finalized.

Monitoring

Because the primary control to regulate fishing by sectors would be the ACE for each stock, sectors must monitor landings to ensure that the sector allocation is not exceeded. Sectors must comply with the at-sea and dockside catch monitoring, which provide information on both landings and discards. Since the

majority of the allowed catch for the fishery would belong to sectors, a greater proportion of the groundfish stocks would be monitored. More monitoring data would be generated, covering a larger percentage of the groundfish stocks, which would be a positive contribution for stock assessments and future regulation that rely on these assessments. Allocated target stocks, non-allocated target species and bycatch, and protected resources would experience a low positive cumulative impact since additional monitoring would provide information for more effective management of the fishery and a better understanding of interactions between fisheries and protected species. There would be a negligible effect on habitat, and a low negative impact on human communities due to the increased monitoring and enforcement costs.

Summary of Impacts from Sector Operations

Overall, the cumulative impacts associated with all sector operations are as follows: negligible impacts to physical environment/habitat/EFH, allocated target species, non-allocated target species and bycatch; low negative for protected resources; and low positive impacts to the human communities.

Table 5.2.2-1
Summary of Aggregated Sector Impacts

	Physical Environment	Biological Environment			Human Communities	
Sector	**Physical Habitat (incl. EFH)**	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
AGGREGATE SECTOR IMPACTS						
Proportion of ACL	Likely Negl	Negl	Negl	Negl	L+	L+
Inter-Sector transfer of ACE	Negl	Negl	Negl	Negl	L+	L+
Consolidation of Permits	Negl	Negl	Negl	Negl	Negl	Negl
Redistribution of Effort	Negl	Negl	Negl	Negl	Negl	Negl
Monitoring	Negl	L+	L+	L+	L-	L-
Summary of Impacts	Negl	Negl	Negl	L-	L+	L+

5.2.3 Other Fishing Effects: Past, Present, and Reasonably Foreseeable Future Groundfish and Related Management Actions

Table 5.2.3-1 is a summary of the past, present, and reasonably foreseeable future fishing actions and effects. The impact assessment terms (i.e., positive, negative, negligible) are for the impacts associated with the action on the VECs discussed in Section 4. Specifically, the VECs include: the physical environment/habitat/EFH; allocated target species; non-allocated target species and bycatch; protected resources such as marine mammals and sea turtles; and the human communities of ports as well as the sector participants.

Table 5.2.3-1
Summary of Effects on VECs from Past, Present, and Reasonably Foreseeable Future FMP and Other Fishery Related Actions with the Exception of Sector Operations

	Physical Impacts	Biological Impacts			Human Community Impacts	
Fishing Actions	**Habitat/EFH**	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Past and Present Fishing Actions						
Amendment 13 (2004) – Implemented requirements for stock rebuilding plans and dramatically cut fishing effort on groundfish stocks. Implemented the process for creating sectors and established the GB Cod Hook Gear Sector	L+ Reductions in fishing effort expected to reduce contact time and aerial extent of fishing gear on EFH.	H+ Fishery Management Plan action further addresses overfished and overfishing status of allocated target species by reducing mortality through additional effort reductions.	+ Reduction in fishing effort results in reduction of bycatch for many species. Reduced fishing effort also reduces mortality on other non-allocated target species.	L+ Further reductions in fishing effort via DAS cuts when combined with previously established Closed Areas reduce the potential for gear interactions.	H- short-term, L+ long-term. Regulations negatively impacted fishing communities in the short-term Reductions expected to lead to more robust stocks in the long-term.	H+ Created sectors and increased efficiency of sector members, decreased overhead costs. Community initiative resulted in conservation effort.
FW 40A (2004) – allowed additional fishing on GB haddock for sector and non-sector hook gear vessels, created the GB haddock Special Access Pilot Program, and created flexibility by allowing vessels to fish inside and outside the U.S./Canada Area on the same trip	Negl Due to limited impact of hook gear.	L- Increased mortality, for GB haddock Designed not to compromise Amendment 13 mortality objectives.	L- Increased effort results in slight incidental mortality Incidental catch minimized by time/area/bait type limitations.	Negl Gear interactions not expected to increase in any significant way.	+ Provided increased revenue to homeports of hook vessels Enhanced importance of industry involvement.	+ Increased revenue to Hook Sector members NEGL For non-hook vessels or non-sector members Participation in collaborative research that brought about sustainable fishing opportunities.

Table 5.2.3-1 (continued)
Summary of Effects on VECs from Past, Present, and Reasonably Foreseeable Future FMP and Other Fishery Related Actions with the Exception of Sector Operations

	Physical Impacts	Biological Impacts			Human Community Impacts	
Fishing Actions	**Habitat/EFH**	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Past and Present Fishing Actions						
FW40B (2005) – Allowed Hook Sector members to use GB cod landings caught while using a different gear during the landings history qualification period to count toward the share of GB cod that will be allocated to the sector, revised DAS leasing and transfer programs, modified provisions for the Closed Area II yellowtail flounder SAP, established a DAS credit for vessels standing by an entangled whale, implemented new notification requirements for Category I herring vessels, and removed the net limit for trip gillnet vessels.	Negl to L+ Potential for decreased impacts because a larger portion of the GB cod stock will be taken with hook gear which has been shown to have negligible impacts to habitat.	L- Short-term increase in effort; minor increase in mortality on GB haddock; not expected to threaten Amendment 13 mortality objectives.	L- Increased effort results in slight incidental mortality. Incidental catch minimized by time/area/bait type limitations.	Negl	L+ Minor benefits gained through relaxed leasing and transfer rules and improvements to the management of the yellowtail flounder SAP that were intended to reduce derby fishing conditions.	L+ Minor benefits gained through increased revenues resulting from a greater allocation of the GB cod TAC based on historical catch landings with gear other than hook gear. Increased revenue due to the removal of gillnet limits on trip vessels.
FW41 (2005) – Allowed for participation in the Hook Gear Haddock SAP by non-sector vessels	Negl	Negl Extended access to Haddock SAP for non-sector vessels which encourages effort on Georges Bank haddock, a healthy stock, and thus away from stocks of greater concern.	Negl to L - Allows for a small overall effort increase which could allow for higher bycatch/discard rates.	Negl	L+ Provided non-Hook sector community members the opportunity to participate in the Haddock SAP, but capped SAP effort.	L - Economic benefits to sectors would be less than non-sector participants because the incidental cod catch limit for sectors is smaller than it is for non-sector vessels.

Table 5.2.3-1 (continued)
Summary of Effects on VECs from Past, Present, and Reasonably Foreseeable Future FMP and Other Fishery Related Actions with the Exception of Sector Operations

	Physical Impacts	Biological Impacts			Human Community Impacts	
Fishing Actions	**Habitat/EFH**	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Past and Present Fishing Actions						
FW42 (2006) – Implemented further reductions in fishing effort based upon stock assessment data and stock rebuilding needs, implemented GB Cod Fixed Gear Sector	L+ Effort reductions may have positive impacts due to less bottom time.	+ Implemented further reductions in fishing mortality for groundfish species, put further catch limits on GB cod.	+ Reduced mortality on target species through effort reductions results in a reduced rate of bycatch/ discards.	L+ Further effort reductions likely resulted in lower risks of gear interaction.	- short-term, L+ long-term Disproportionate effects on these groundfish-dependent ports. Long-term benefits from reduced mortality.	+ Allowed additional gear type to gain the efficiencies and other benefits of sector membership.
Atlantic Large Whale Take Reduction Plan	Negl to L- Requires use of sinking groundline, which may sweep bottom. Also potential for "ghost gear" due to weak links in gillnet line.	Negl	Negl	+ Regulations implemented to protect large whales are expected to have a positive impact by reducing incidental takes.	L- to Negl	L- for gillnetters because weak links must be added to gillnets.
Monkfish Fishery Management Plan and Amendment 5 (2011) Implemented ACLs and AMs; set the specifications of DAS and trip limits; and make other adjustments to measures in the Monkfish FMP.	L+ Reduction in fishing effort results in less habitat-gear interaction.	+ Monkfish management actions have reduced fishing effort over the last decade, which has resulted in positive impacts for groundfish.	+ Monkfish management actions have reduced fishing effort over the last decade, and would continue positive impacts for monkfish stocks	+ Reduction in fishing effort results in less gear interaction.	L- short-term L+ long-term Reduction in fishing effort while stock rebuilds means less revenue. Long term benefits due to sustainable fishery.	L- short-term L+ long-term Reduction in fishing effort while stock rebuilds means less revenue. Long term benefits due to sustainable fishery.

Table 5.2.3-1 (continued)
Summary of Effects on VECs from Past, Present, and Reasonably Foreseeable Future FMP and Other Fishery Related Actions with the Exception of Sector Operations

	Physical Impacts	Biological Impacts			Human Community Impacts	
Fishing Actions	**Habitat/EFH**	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Past and Present Fishing Actions						
Spiny Dogfish Fishery Management Plan	Negl Most of the landed dogfish catch has historically been landed with bottom gillnets rather than bottom trawls, therefore, negligible impact on habitat.	Negl Dogfish is caught incidentally in the multispecies fishery	+ Spiny dogfish stock is not overfished and overfishing is not occurring.	Negl	L+ The species is no longer considered overfished nor is overfishing occurring. FY 2010 through 2012 specifications increased the quota.	L+ The species is no longer considered overfished nor is overfishing occurring. FY 2010 through 2012 specifications increased the quota.
Amendment 16 to the Northeast Multispecies FMP (2009) Implemented DAS reductions and gear restrictions for the common pool, approved formation of additional 17 sectors	+	+	+	+	- short-term, L+ long-term	- short-term, L+ long-term

Table 5.2.3-1 (continued)
Summary of Effects on VECs from Past, Present, and Reasonably Foreseeable Future FMP and Other Fishery Related Actions with the Exception of Sector Operations

	Physical Impacts	Biological Impacts			Human Community Impacts	
Fishing Actions	**Habitat/EFH**	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Past and Present Fishing Actions						
Skate Fishery Management Plan and Amendment 3 (2010) Amendment 3 implemented final specifications for the 2010 and 2011 FYs, implemented ACLs and AMs, 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, seasonal quotas for the bait fishery, new possession limits, in season possession limit triggers.	+	+	+	+	-	-
FW 44 to the Northeast Multispecies FMP (2010) Set ACLs, established TACs for transboundary U.S./CA stocks, and made adjustments to trip limits/DAS measures	+	+	+	+	- short-term, L+ long-term	- short-term, L+ long-term

Table 5.2.3-1 (continued)
Summary of Effects on VECs from Past, Present, and Reasonably Foreseeable Future FMP and Other Fishery Related Actions with the Exception of Sector Operations

	Physical Impacts	Biological Impacts			Human Community Impacts	
Fishing Actions	**Habitat/EFH**	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Past and Present Fishing Actions						
FW 45 to the Northeast Multispecies FMP (2011) Revised the biological reference points and stock status for pollock, updated ACLs for several stocks for FYs 2011–2012, adjusted the rebuilding program for GB yellowtail flounder, increased scallop vessel access to the Great South Channel Exemption Area, modified the existing dockside and at-sea monitoring requirements, established a GOM Cod Spawning Protection Area, authorized new sectors and adjusted TACs for stocks harvested in the US/ CA area for FY 2011.	L+	L+	L+	L+	L- short term L+ long term	L- short term L+ long term
FW 46 to the Northeast Multispecies FMP (2011) Increased the haddock catch cap for the herring fishery to 1% of the haddock ABC for each stock of haddock.	Negl	Negl	Negl	Negl	Negl to L-	Negl to L-

Table 5.2.3-1 (continued)
Summary of Effects on VECs from Past, Present, and Reasonably Foreseeable Future FMP and Other Fishery Related Actions with the Exception of Sector Operations

	Physical Impacts	Biological Impacts			Human Community Impacts	
Fishing Actions	**Habitat/EFH**	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Past and Present Fishing Actions						
Harbor Porpoise Take Reduction Plan (2010) Plan was amended to expand seasonal and temporal requirements within the HPTRP management areas; incorporate additional management areas; and create areas that would be closed to gillnet fisheries if certain levels of harbor porpoise bycatch occurs.	Likely +	Likely +	Likely +	Likely +	Likely -	Likely -
Scallop Amendment 15 (2011) Implemented ACLs and AMs to prevent overfishing of scallops and yellowtail flounder; addressed excess capacity in the LA scallop fishery; and adjusted several aspects of the overall program to make the Scallop FMP more effective, including making the EFH closed areas consistent under both the scallop and groundfish FMPs for scallop vessels.	Negl	L+	Negl	Negl	L+	L+

Table 5.2.3-1 (continued)
Summary of Effects on VECs from Past, Present, and Reasonably Foreseeable Future FMP and Other Fishery Related Actions with the Exception of Sector Operations

	Physical Impacts	Biological Impacts			Human Community Impacts	
Fishing Actions	**Habitat/EFH**	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Past and Present Fishing Actions						
Amendment 17 to the Northeast Multispecies FMP This amendment looks to streamline the administration process whereby NOAA-sponsored, state-operated permit banks can operate in the sector allocation management program	Negl	Negl	Negl	Negl	Negl	Negl
FW 47 to the Northeast Multispecies FMP (2012) FW 47 measures include revisions to the status determination for winter flounder, revising the rebuilding strategy for GB yellowtail flounder, Measures to adopt ACLs, including relevant sub-ACLs and incidental catch TACs; adopting TACs for U.S/Canada area, as well as modifying management measures for SNE/MA winter flounder, restrictions on catch of yellowtail flounder in GB access areas and accountability measures for certain stocks	Negl	+	+	Negl	-	-

Table 5.2.3-1 (continued)
Summary of Effects on VECs from Past, Present, and Reasonably Foreseeable Future FMP and Other Fishery Related Actions with the Exception of Sector Operations

	Physical Impacts	Biological Impacts			Human Community Impacts	
Fishing Actions	**Habitat/EFH**	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Reasonably Foreseeable Future Fishing Actions						
Omnibus Essential Fish Habitat Amendment Phase 2 of the Omnibus EFH Amendment would consider the effects of fishing gear on EFH and move to minimize, mitigate or avoid those impacts that are more than minimal and temporary in nature. Further, Phase 2 would reconsider closures put in place to protect EFH and groundfish mortality in the Northeast Region.	Likely +	Likely +	Likely +	ND	ND	ND
Harbor Porpoise Take Reduction Plan (Potential Future Actions) Future changes to the plan in response to additional information and data about abundance and bycatch rates.	Likely L+	Likely +	Likely +	Likely +	Likely -	Likely -
Framework 48 to the Northeast Multispecies FMP Considers measures to reduce costs, add flexibility for groundfish vessels and implements accountability measures for non-allocated stocks.	Likely Negl	Likely Negl	Likely Negl	Likely Negl	Likely +	Likely +

Table 5.2.3-1 (continued)
Summary of Effects on VECs from Past, Present, and Reasonably Foreseeable Future FMP and Other Fishery Related Actions with the Exception of Sector Operations

	Physical Impacts	Biological Impacts			Human Community Impacts	
Fishing Actions	**Habitat/EFH**	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Protected Resources**	**Ports**	**Sector Participants**
Reasonably Foreseeable Future Fishing Actions						
Amendment 3 to the Spiny Dogfish FMP This amendment considers the establishment of a research set aside program, updates to EFH definitions, year-end rollover of management measures and revisions to the quota allocation scheme.	Likely Negl	Likely Negl	Likely L+	Likely Negl	Likely L+	Likely L+
Framework 50 to the Northeast Multispecies FMP This FW would adopt FY2013-2015 ACLs and specifications for the U.S./Canada Total Allowable Catches (TACs),	Likely +	Likely +	Likely +	Likely Negl	Likely -	Likely -
Framework 24 to the Atlantic Sea Scallop FMP (Framework 49 to the Northeast Multispecies FMP) This framework sets specifications for scallop FY 2013 and 2014. It is also considering measures to refine the management of yellowtail flounder bycatch in the scallop fishery	Likely Negl	Likely Negl to L+	Likely Negl to L+	Likely Negl	Likely - to +	Likely - to +
Summary of Impacts	**+**	**+**	**+**	**+**	**-**	**-**

Noted: ND= Not determined

5.2.3.1 Physical Environment/Habitat/EFH

Past and Present Actions: Amendments 13 and 16 as well as FWs 42, 44 and 45 to the Northeast Multispecies FMP reduced fishing effort. Reduction in fishing effort results in less gear interaction with bottom habitat, effectively producing positive effects for the physical environment.

NMFs implemented FWs 40A and 40B in 2004 and 2005. These FWs increased the number of cod caught with hook gear since previously non-hook vessels could now join the GB Cod Hook Sector. FW 41 allowed non-sector vessels to participate in the Hook Gear Haddock SAP established under FWs 40A and 40B. These actions had a negligible to low positive effect on habitat because hook gear has minimal impacts to bottom habitat. Further, FW 40B removed net limits for trip gillnet vessels, which may have resulted in gear switching to gillnets. While only slight effort changes occurred as a result of FW 40B, switching from gears with more bottom interaction to gillnets would have resulted in a negligible to low positive impact from the removal of the net limit for trip gillnet vessels.

The ALWTRP requires the use of sinking groundlines, which may have a negligible to low negative impact on habitat due to associated bottom sweep by the groundline. In addition, required use of weak links in gillnets may result in floating "ghost gear," which could snag on and damage bottom habitat.

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. NMFS declared the spiny dogfish stock rebuilt for the purposes of U.S. management in May 2010. Prior to FY 2009, spiny dogfish trip limits and quotas were kept low to allow the species to rebuild. Fishermen typically retained spiny dogfish caught incidentally to other target fisheries. The quota was tripled in FY 2009 to 12 million pounds, and the daily trip limit was increased from 600 to 3,000 pounds. A 20 million pound TAL level and a 3,000 pound trip limit is in place for FY 2011. Most of the landed catch has historically been with bottom gillnets, not bottom trawls. Gillnets have a low impact on vulnerable benthic habitats and no appreciable amount of additional trawling was expected as a result of the quota and trip limit increase. Therefore, this FMP has likely had a negligible effect on physical environment/habitat/EFH.

The Monkfish FMP and its modifications have resulted in a reduction in fishing effort, which has resulted in less habitat-gear interaction. Amendment 5 to the Monkfish FMP did not change the DAS and trip limits. Framework Adjustment 7 to the Monkfish FMP (2011) increased the annual catch target for monkfish and increased the DAS and trip limits for category B and D permitted vessels in the Northern Fishery Management Area. Overall, due to the historic reduction in fishing effort, the Monkfish FMP has had a positive impact on physical resources.

Amendment 3 to the skate FMP seeks to sufficiently reduce discards and landings to rebuild stocks of winter, thorny, and smooth skates, and to prevent other skates from becoming overfished. The reduction in fishing effort should result in fewer habitat and gear interactions, a likely positive impact to the physical environment.

The HPTRP final rule (published February 19, 2010 (50 CFR 229.33)) expanded temporal and seasonal requirements within the HPTRP management areas for gillnet gear. This includes sink gillnet gear which is capable of catching groundfish species. The rule is not likely to modify the way that gillnet gear is used in a manner that would affect EFH and habitat. However, it would at least seasonally reduce fishing effort in closure areas. While gillnets have a small impact on benthic habitats, the HPTRP final rule would reduce geardays in closed areas. Therefore, the HPTRP rule is likely having a low positive effect on the physical environment/habitat/EFH.

Although scallop dredges have been shown to be associated with adverse impacts to some types of bottom habitat (NEFMC 2003b), no measure contained in Amendment 15 to the Scallop FMP is likely to increase adverse impacts to areas designated as EFH. Therefore impacts to physical environment/habitat/EFH are expected to be negligible.

Amendment 17 to the Northeast Multispecies FMP is administrative and is not projected to alter fishing behavior. Therefore, impacts to physical environment/habitat/EFH are expected to be negligible.

Framework 46 is not expected to lead to an increase in the frequency of bottom contact by fishing gear, and as such, is projected to have a negligible impact on physical environment/habitat and EFH. Framework 47resulted in relatively minor adjustments in the context of the fishery as a whole and is expected have negligible impacts on EFH.
Furthermore, the proposed action does not allow for access to the existing habitat closed areas on GB that were implemented in Amendment 13 to the Multispecies FMP and Amendment 10 to the Scallop FMP and therefore it continues to minimize the adverse impacts of bottom trawling and dredging on EFH. Overall, there are likely to be only negligible impacts to physical environment/habitat and EFH from the adoption of this framework.

Future Actions: The EFH Omnibus Amendment will provide for a review and update of EFH designations, identify habitat areas of particular concern, as well as provide an update on the status of current knowledge of gear impacts. It will also include new proposals for management measures for minimizing the adverse impact of fishing on EFH that will affect all species managed by the NEFMC, in a coordinated and integrated manner. The net effect of new EFH and habitat areas of particular concern designations and more targeted habitat management measures should be positive for EFH.

Any future rule-making to revise the HPTRP could result in additional restrictions on gillnet fisheries. While, gillnets have a small impact on benthic habitat, any future modifications to the HPTRP that further restricts the use of gillnets would likely have a low positive effect on physical conditions due to the decreased fishing effort.

Framework 50 to the multispecies FMP is expected to result in reduced ACLs which would likely have positive impacts on habitat due to decreased fishing activity.

Summary of Impacts: As indicated in Table 5.2.3-1, management measures in Amendment 13, FW 42, Amendment 16, Amendment 3 to the Skate FMP, FW 44 and FW 45 have (or would be expected to have) positive effects on habitat due to reduced fishing efforts, consequently reducing gear interaction with habitat. The HPTRP could result in seasonal closures. These closures would result in a low positive impact by reducing fishing effort and the associated bottom interactions. Further, the omnibus EFH amendment would result in targeted habitat protection. This would have positive effects on benthic habitat and physical resources. FWs 40A, 40B, and 41 resulted in negligible to low positive effects on habitat by decreasing bottom impacts as more cod is caught with low impact fixed gear. The ALWTRP resulted in low negative to negligible effects on habitat due to the required use of a sinking groundline which may sweep the bottom and the potential for “ghost gear.” The dogfish and scallop FMPs generally increased fishing effort for certain species and generally resulted in negligible to low negative effects on habitat. The Monkfish FMP has generally resulted in positive impacts on habit through fewer habitat and gear interactions. Amendment 17 is administrative in nature and would have negligible impacts on habitat. Framework 46 is not expected to lead to an increase in the frequency of bottom contact by fishing gear, and as such, is projected to have a negligible impact on physical environment/habitat and EFH. Framework 47 resulted in relatively minor adjustments in the context of the fishery as a whole and is expected have negligible impacts on EFH. Overall, the cumulative effect of past, present, and reasonably foreseeable future fishing actions have resulted in positive effects on habitat.

5.2.3.2 Allocated Target Species

Past and Present Actions: Although management measures for groundfish were first enacted for the EEZ in 1977 under the original Multispecies FMP, the dramatic increase in larger vessels, bigger gear, and electronic aids, such as fish finders and navigation equipment, contributed to a greater efficiency and intensity of fishing. This in turn resulted in a precipitous drop in landings during the 1980's to an all-time low in the early 1990's. The following discussion is limited to past actions beginning with the implementation of Amendment 13. However, it should be noted that management actions taken prior to Amendment 13 have generally controlled effort on managed groundfish stocks, decreased impacts to habitat, reduced gear interactions with protected species, and had a negative impact on human communities. However, because actions prior to Amendment 13 did not rebuild overfished stocks to sustainable levels, greater effort reductions were necessary.

Amendments 13 and 16, as well as FWs 42, 44 and 45, implemented restrictions on fishing effort in order to rebuild groundfish stocks. These restrictions had positive effects on groundfish. In contrast, FW 40A and 40B allowed for minor increases in fishing effort on cod and/or haddock resulting in low negative impacts on these species. FW 41 expanded participation in the Hook and Gear Haddock SAP to non-sector vessels. However due to the small overall effort increase under this framework it had a negligible effect on allocated target species.

As discussed in Section 4.3, the results of the GARM III show stocks of ocean pout and Atlantic halibut are being fished at a sustainable level, but the biomass indicates stocks have not yet been rebuilt and are considered to be overfished. The stocks of GB haddock and pollock are rebuilt, and GOM haddock, Acadian redfish, and American plaice are no longer overfished or experiencing overfishing. This indicates Amendment 13 and FW 42 management actions have had positive effects on certain groundfish stocks. GOM cod and southern windowpane flounder are not overfished, but they are experiencing overfishing. All other groundfish stocks are overfished and are still experiencing overfishing. The management measures in Amendment 16 to the Northeast Multispecies FMP seek to address the overfishing.

Changes in the ACLs, TACs, and rebuilding strategies for some groundfish species and the implementation of the GOM Cod Spawning Protection Area a introduced measures that slightly reduced overall fishing effort and protected some spawning areas. Therefore, FW 45 had a low positive impact on the overall allocated target stocks.

Because skates, monkfish, and spiny dogfish are managed by FMPs other than the Northeast Multispecies FMP, the impacts of these management measures on allocated groundfish species are briefly discussed below.

The spiny dogfish FMP has resulted in an increase in stock biomass such that the most recent data indicates that the female spawning stock biomass is likely to be above the most recently calculated MSY biomass (B_{MSY}). This development has resulted in increases in both quota and trip limits for this species set by the FY 2010 and 2011 specifications NMFS and he MAFMC set a 20 million pound total allowable landings level and a 3,000 pound trip limit for the fishing year specifications for the FY 2011. With this increase in quotas and trip limits, it is likely that there will be an increase in the amount of spiny dogfish caught and landed by vessels fishing for groundfish. Dogfish is primarily caught incidentally in the multispecies fishery. Therefore, a rebuilt spiny dogfish stock would have negligible effects on allocated target groundfish species.

Monkfish is commonly caught along with groundfish and is one of the top target species that is not allocated to sectors by an ACE. Monkfish are currently regulated by the Monkfish FMP, which was implemented in 1999. The FMP was designed to stop overfishing and rebuild the stocks through:

- limiting the number of vessels with access to the fishery and allocating DAS to those vessels
- setting trip limits for vessels fishing for monkfish
- implementing minimum fish size limits, gear restrictions, and mandatory time out of the fishery during the spawning season

Amendment 5 to the Monkfish FMP implemented ACLs and AMs, and included both DAS and trip limits associated with the new catch targets based on updated stock information. The Monkfish FMP and subsequent amendments and framework actions have reduced fishing effort over the last decade. This has resulted in positive impacts for allocated target species.

As indicated in Table 87 of the Final EIS for Amendment 16 to the Northeast Multispecies FMP, skates comprised nearly half the landings by weight for FY 2006 and 2007, under the Category B DAS (multispecies) program. Skates are currently managed under an FMP. Amendment 3 to the FMP was implemented in 210 and limited skate possession to 500 lbs on common pool B DAS trips. The purpose of Amendment 3 to the Skate FMP regulations are to reduce discards and landings sufficiently to rebuild stocks of winter, thorny, and smooth skates, and to prevent other skates from becoming overfished. The new management measures in Amendment 3 may result in a reduction in fishing effort to rebuild biomass. Therefore, the likely impacts would be positive for the allocated multispecies stocks, which are simultaneously targeted with skates.

NMFS amended the regulations implementing the HPTRP in 2010 to address harbor porpoise mortalities (75 FR 7383). Under this rule, closure areas were implemented to reduce harbor porpoise interactions with fishing. Further, under the ALWTRP, seasonal closure areas and restrictions for commercial gillnets, including sink gillnets in the northeast, have been implemented. These take reduction plans could result in a restriction of fishing effort in closed areas; which would result in a negligible to positive impacts to groundfish species in the closed areas.

The target stock for Amendment 15 to the Scallop FMP is the Atlantic sea scallop. Yellowtail flounder (all three stocks) is a common bycatch species in the scallop fishery. Due to the rate of yellowtail flounder catch in the scallop fishery, Amendment 16 to the Multispecies FMP established a yellowtail flounder ACL sub-component for the scallop fishery. Under Amendment 15 of the Scallop FMP, AMs for the catch of yellowtail flounder in the scallop fishery were established. Therefore, yellowtail flounder caught in the scallop fishery will be considered a sub-ACL controlled by an AM. Adoption of ACLs and AMs for the scallop fishery and the yellowtail flounder bycatch should provide an incentive for scallop fishermen to reduce their yellowtail bycatch in order to maximize scallop yield. For this reason, Amendment 15 to the Scallop FMP should inherently have low positive impacts on allocated target species.

Amendment 17 to the Northeast Multispecies FMP is administrative and is not projected to alter fishing behavior. Therefore, impacts to allocated target species are expected to be negligible.

Framework 46 adjusts the maximum allowable catch of haddock in the herring fishery, and does not impact the overall ACL. As such impacts would be negligible to allocated target species.

Framework 47 is designed to achieve the rebuilding objectives for the Northeast Multispecies fishery and would control fishing mortality on Northeast Multispecies stocks in order to prevent (or end) overfishing and rebuild overfished stocks. Therefore, impacts to allocated target species are expected to be positive.

Future Actions: The provisions in the EFH Omnibus Amendment could result in greater habitat protection for areas that are highly vulnerable to the adverse effects of fishing, resulting in a likely positive effect on groundfish.

Any future revisions to the HPTRP could result in additional restrictions on gillnet fisheries. Future actions would likely result in vessels facing additional restrictions and decreased fishing effort, possibly resulting in positive impacts to groundfish and other species that are taken incidentally in the gillnet fishery.

Framework 50 to the multispecies FMP is expected to result in reduced ACLs which would likely have positive impacts on allocated target species due to decreased fishing mortality.

Summary of Impacts: Amendment 13, FW 42, Amendment 16, FW 44, FW 45 and FW 47 have had (or would be expected to have) positive effects on allocated target species. Other FMPs that affect other species landed by groundfish sectors also result in positive effects on allocated target species. Future measures that will likely restrict fishing effort (EFH Omnibus, HPRTP) will also have positive effects on allocated target species. Actions that increase fishing effort (i.e., FWs 40A, 40B, 41) had low negative or negligible effects on allocated target species. Amendment 17, ALWTRP would all have negligible impacts on allocated resources. Framework 46 adjusts the maximum allowable catch of haddock in the herring fishery, and does not impact the overall ACL. As such impacts would be negligible to allocated target species. Overall, the cumulative effect of past, present, and reasonably foreseeable future fishing actions have resulted in positive effects on allocated target species.

5.2.3.3 Non-allocated Target Species and Bycatch

Past and Present Actions: Non-allocated target species and bycatch are those species that dominate bycatch (i.e., dogfish) or are the primary alternate species that are landed by groundfishermen (i.e., monkfish and skates). Northeast Multispecies FMP management actions that reduce fishing effort (i.e., Amendment 13, FW 42, 44, and 45, and Amendment 16) have or will likely have indirect positive effects on non-allocated target species and bycatch caught in conjunction with the allocated target species. Conversely, actions that increase fishing effort (i.e., FW 40A, FW 40B, 41) have negligible or low negative effect on both landed species and bycatch.

Spiny dogfish was one of the top non-groundfish species landed by multispecies vessels under the Category B (regular) DAS program (Table 87 of Amendment 16 Final EIS). This species primarily interacts with gillnet and hook and line gear, and represented over 90 percent of the bycatch reported by the GB Cod Fixed Gear and Hook Sectors in 2006 and 2007. Since the spiny dogfish stock is managed under a FMP separate from the Northeast Multispecies FMP, the impacts of the spiny dogfish FMP are briefly discussed. The spiny dogfish FMP was implemented in 2000 in response to a decline in the female spawning stock biomass, and it initiated stock rebuilding measures. Included among the approved management measures in the FMP was the requirement that the MAFMC and NEFMC jointly develop annual specifications, which include a commercial quota to be allocated on a semi-annual basis, and other restrictions to assure that fishing mortality targets will not be exceeded. Based upon the 2009 updated stock assessment performed by the Northeast Fisheries Science Center, the spiny dogfish stock is not presently overfished and overfishing is not occurring. NMFS declared the spiny dogfish stock rebuilt for the purposes of U.S. management in May 2010. The dogfish FMP has resulted in a positive impact to the dogfish stock, the primary bycatch species of the groundfish fleet Dogfish Amendment considers the revisions to the quota allocation scheme which would likely result in positive impacts for dogfish.

Monkfish is commonly caught along with groundfish and is considered one of the top target species that is not allocated to sectors by an ACE (i.e., non-allocated target species). Monkfish are currently regulated

by the Monkfish FMP, which was implemented in 1999. The Monkfish FMP and subsequent amendments (such as Amendment 5) and framework actions have reduced fishing effort over the last decade, which has resulted in positive impacts for groundfish and non-groundfish stocks (including bycatch).

Skates comprised nearly half the landings by weight for FY 2006 and 2007 under the Category B DAS (multispecies) program (see Table 87 of the Final EIS for Amendment 16 to the Northeast Multispecies FMP). Skates are currently managed under a separate FMP NMFS implemented Amendment 3 to the Skate FMP in 2010 to reduce discards and landings sufficiently to rebuild stocks of winter, thorny, and smooth skates, and to prevent other skates from becoming overfished. The new management measures in Amendment 3 may reduce fishing effort to rebuild biomass. Therefore, the impacts would be positive for non-allocated target species.

As with allocated target species, revisions to the HPTRP and the ALWTRP could result in additional restrictions on vessels, possibly resulting in negligible to positive impacts to bycatch through effort reductions.

Amendment 15 to the Scallop FMP implemented specific gear and area restrictions that should reduce bycatch of various non-target species. Effort controls to maintain sustainability in the scallop fishery have reduced effort and increased efficiency of the fleet, which reduces impact on non-allocated target species and bycatch. Overall, if mortality on scallops is higher than expected and ACLs are exceeded, AMs will be implemented to correct the overage. That reduced effort would have beneficial impacts on non-allocated target species. Further, it would be expected that AMs developed for yellowtail flounder would also reduce impact on other non-allocated targeted and bycatch species. While there may be a benefit to non-yellowtail flounder bycatch species due to AMs in Amendment 15 and reduced fleet effort due to increased efficiency, impacts from Amendment 15 to Scallop FMP on non-allocated target species and bycatch would be negligible because specific AMs or sub-ACLs for other non-allocated targeted and bycatch species have not been established under this Amendment,

Amendment 17 to the Northeast Multispecies FMP is administrative and is not projected to alter fishing behavior. Therefore, impacts to non-allocated target and bycatch species are expected to be negligible.

Framework 46 adjusts the maximum allowable catch of haddock in the herring fishery, and does not impact the overall ACL. As such impacts would be negligible to non-allocated target species.

Framework 47 is designed to achieve the rebuilding objectives for the Northeast Multispecies fishery and would control fishing mortality. Therefore, impacts to non-allocated target species are expected to be positive.

Future Actions: Implementation of the EFH Omnibus Amendment may result in additional habitat protections for which there is an indirect positive effect to bycatch species, as they would also receive protection. Similar to allocated species, any future revisions to the HPTRP could result in additional restrictions on gillnet fisheries, possibly resulting in positive impacts to non-allocated target species and bycatch through effort reductions.

Framework 50 to the multispecies FMP is expected to result in reduced ACLs which would likely have positive impacts on non-allocated target species due to decreased fishing effort.

Summary of Impacts: As indicated in Table 5.2.3-1, actions that reduce fishing effort have had positive effects on non-allocated target species and bycatch because in general, less fishing effort results in less impact from fishing on non-allocated target species and bycatch. Further FMPs developed for non-

allocated target species (such as monkfish, dogfish, and skates) have resulted in positive impacts to these species. However, recent groundfish actions that reduce fishing effort may not have benefited non-allocated target species to a great extent, due to the percentage of these species caught as bycatch, and increased targeting of non-groundfish species. Conversely, actions that increase fishing effort (i.e., FW 40A, FW 40B, FW 41) are considered to have low negative or negligible effects on non-allocated target species and bycatch because more fishing generally results in more non-allocated target species and bycatch. Amendment 17 would have negligible impacts on non-allocated target species and bycatch as it is an administrative action. Framework 46 adjusts the maximum allowable catch of haddock in the herring fishery, and does not impact the overall ACL. As such impacts would be negligible to non-allocated target species. Framework 47 measures control fishing mortality. Therefore, impacts to non-allocated target species are expected to be positive. Overall, the cumulative effect of past, present, and reasonably foreseeable future fishing actions have resulted in positive effects on non-allocated target species and bycatch.

5.2.3.4 Protected Resources

Past and Present Actions: Reductions in fishing effort through the implementation of management actions such as Amendment 13, FWs 42, 44 and 45, Amendment 16 have generally had positive effects on protected resources by limiting the amount of fishing gear used in their geographic range during the fishing year, which may result in reductions in the rates of gear interaction with endangered species and other protected resources. FWs 40A, 40B, and 41 allowed minor increases in fishing with fixed gear, which had negligible impacts on protected resources.

In addition to these actions, NMFS has implemented specific regulatory actions to reduce injuries and mortalities from gear interactions. NMFS implemented the ALWTRP in 1999 with subsequent rule modifications, restrictions, and extensions. ALWTRP includes:

- time and area closures for trap/pot fisheries (e.g., lobster and black sea bass) and gillnet fisheries (e.g., anchored gillnet and shark gillnet fisheries)
- gear requirements, including a general prohibition on having line floating at the surface in these fisheries; a prohibition on storing inactive gear at sea
- restrictions on setting shark gillnets off the coasts of Georgia and Florida and drift gillnets in the Mid-Atlantic.
- and non-regulatory aspects such as gear research, public outreach, scientific research, a network to inform mariners when right whales are in an area, and increasing efforts to disentangle whales caught in fishing gear.

The intent of the ALWTRP is to positively affect large whales by reducing injuries and deaths of large whales (North Atlantic right, humpback, and fin) in waters off the U.S. East Coast due to incidental entanglement in fishing gear.

The HPTRP has had a positive impact on harbor porpoises since its implementation in 1998. Additional HPTRP measures implemented in 2010 placed additional management restrictions for gillnetters. Indirectly, the HPTRP may also lead to positive impacts as interactions with other marine mammals may be reduced due to limitations placed on gillnet fishing effort.

The Skate and Monkfish FMPs have historically resulted in a reduction in fishing effort, which has resulted in less fishery interactions with protected resources. Therefore, theses FMP have had positive impact on protected resources.

Under the dogfish FMP, it is likely that there will be an increase in the amount of spiny dogfish caught and landed by vessels fishing for groundfish. Because vessels capturing spiny dogfish primarily use bottom gillnets, this fishery would be subject to protected resources take minimization measures such as pinger requirements and closed areas in the HPTRP and ALWTRP. Therefore, the dogfish FMP would have a negligible effect on protected resources.

Bycatch is one of the primary factors affecting Atlantic sturgeon cited in NMFS' listing for the five DPSs of Atlantic sturgeon. Previous analyses concluded that to remain stable or grow, populations of Atlantic sturgeon can sustain only very low anthropogenic sources of mortality (Kahnle *et al*. 2007). It is apparent, therefore, that reductions in bycatch mortality will most likely be required in order to recover Atlantic sturgeon. Current estimates for DPS are noted in Section 4.5.2.5. Although NMFS does not have information necessary to determine the sex or spawning condition of Atlantic sturgeon encountered by the groundfish fishery, these encounters may include both males and females and fish that may or may not spawn during that year. Therefore, encounters of Atlantic sturgeon by the groundfish fishery are expected to be a subset of the entire population, as opposed to being comprised exclusively of the smaller annual spawning population.

On February 6, 2012, NMFS issued two final rules (77 *FR 5880-5912;* 77 *FR 5914-5982)* listing five Distinct Population Segments (OPS) of Atlantic sturgeon as threatened or endangered. Four DPSs (New York Bight, Chesapeake Bay, Carolina and South Atlantic) are listed as endangered and one DPS (Gulf of Maine) is listed as threatened. The effective date of the listing is April 6, 2012.

NMFS has reinitiated consultation on the ten fisheries, including the NE Multispecies FMP. NMFS has determined that allowing these fisheries to continue during the reinitiation period will not violate ESA sections 7(a)(2) and 7(d). Preliminary analysis indicates that multiple DPSs of Atlantic sturgeon may be affected by the continued operation of these fisheries. During the reinitiation period, NMFS will also review information on listed whales and sea turtles that has become available since consultations on these FMPs were last completed and will incorporate new information and analysis into the biological opinions as appropriate. The ESA and the Section 7 regulations (50 CFR 402.14) require that formal consultation be concluded within 90 calendar days of initiation, and that a biological opinion be completed within 45 days after the conclusion of formal consultation. NMFS anticipates completing these consultations within that period.

NMFS has determined that the continued operation of the NE Multispecies FMP is not likely to jeopardize the continued existence of any listed species including any of the five Atlantic sturgeon DPS's. The NE multispecies fishery may interact with Atlantic sturgeon. However, the more recent, larger population estimate derived from NEAMAP data support (Kocik et al. 2013) the conclusion that the level of interactions with the NE multispecies fishery is not likely to have a significant adverse impact on the overall Atlantic sturgeon population, or any of the DPSs. Since the decision to list the Atlantic sturgeon DPSs as endangered and threatened under the ESA, the ESA Section 7 consultation for the NE multispecies fishery has been reinitiated and is ongoing. It is expected that an updated Biological Opinion will be issued during the 2013 NE multispecies fishing year that will contain additional evaluation to describe any impacts of the fisheries on Atlantic sturgeon and other listed species and define any measures needed to mitigate those impacts, if necessary. Additionally, this EA evaluates a temporary action, one that is only in place for FY 2013. Therefore, impacts resulting from the approval of the FY 2013 sector operations, and exemptions are not likely to be significant.

Amendment 15 to the Scallop FMP had measures that would be unlikely to alter scallop fishery impacts on protected resources. Therefore, impacts to protected resources are expected to be negligible.

Amendment 17 to the Northeast Multispecies FMP is administrative and is not projected to alter fishing behavior. Therefore, impacts to protected resources are expected to be negligible.

The impacts of Framework 46 contained measures that would be considered to be negligible to protected species as the catch cap would be part of the groundfish allocation structure, and would only allow for the herring fishery to catch what has already been allocated and analyzed.

Framework 47 resulted in relatively minor adjustments in the context of the fishery as a whole and is expected have negligible impacts on EFH.

Future Actions: As this date, the impacts of the EFH Omnibus Amendment on protected resources are unknown. Any future modifications to the HPTRP may be implemented if harbor porpoise interaction reduction goals are not met, which would result in a positive impact on protected resources through additional reductions in harbor porpoise interactions. However, EFH fishing closure areas are not developed yet, and as such, potential impacts to protected resources from shifting effort is currently not known.

Serious injuries and mortalities of Atlantic sturgeon in commercial fishing gear are a likely concern for the long term persistence and recovery of the DPSs, and are a primary reason cited for the proposals to list the DPSs under the ESA. If final listing determinations are issued, the existing Section 7 consultation for the multispecies fishery would be reinitiated consistent with the requirement to reinitiate formal consultation where discretionary Federal agency involvement or control of the action has been retained and a new species is listed that may be affected by the action. During the reinitiation, the effects of the multispecies fishery on the five DPSs would be fully examined. Along with the impacts analysis, the formal consultation process will result in conservation recommendations and, if pertinent, reasonable and prudent measures, which would be actions deemed necessary or appropriate to minimize the impacts of take.

Summary of Impacts: As indicated in Table 5.2.3-1, management actions that reduce fishing effort also reduce gear interaction with protected resources, resulting in positive effects. FWs 40A, 40B, and 41allowed minor increases in fishing, which have negligible to low negative impacts on protected resources. With the exception of the EFH Omnibus Amendment, all other management actions described were designed to benefit or be negligible to protected resources. Therefore, these actions are all considered to have positive effects on this VEC. Overall, the cumulative effect of these past, present, and reasonably foreseeable future fishing actions have resulted in positive effects on protected resources.

5.2.3.5 Human Communities

Past and Present Actions: Past and present actions that have had negative short-term and low positive long-term impacts to the port communities and positive impacts to sector members include Amendment 13, FWs 42, and 45, and Amendments 16 and 17 to the Northeast Multispecies FMP. These actions both substantially cut fishing effort in order to rebuild stocks by mandated timeframes, resulting in economic losses in the short-term. Because these actions are designed to rebuild the groundfish stocks and stabilize the fishing industry, these actions are expected to have long-term positive effects on the human communities.

FW 40A implemented the Closed Area I Hook Gear Haddock SAP which allowed increased opportunities for the GB Cod Fixed Gear and Hook Sector to fish healthy haddock stocks using hook gear only, resulting in a low positive effect for members of this sector. FW 41 allowed non-sector vessels to participate in the Closed Area I Hook Gear Haddock SAP, which extended the positive economic effects to non-sector vessels and increased revenue for the port communities, resulting in a low positive effect.

FW 40B allowed vessels with no hook history to join the GB Cod Hook Sector and contribute their historical cod landings to the sector's allocation based on landings made with gear types other than hook gear, resulting in a low positive impact to the sector participants.

The ALWTRP had impacts on the human community ranging from low negative to negligible; primarily because these measures required minor gear modifications for gillnet gear to reduce impacts to protected resources. Similarly, actions of the HPTRP could have negative impacts, particularly if the impacts from this plan compound reductions implemented via Amendment 16.

Historically, the spiny dogfish FMP has had a low negative impact on human communities because of the implementation of quotas and trip limits, therefore, reducing revenue. However, the FY 2009 and FY 2010 specifications increased the quota and trip limits because the species is no longer considered overfished nor is overfishing occurring. This increase in quota and the rebuilding goal of the FMP will likely have a positive impact on the human communities because there will be a sustainable fishery available for harvest. Dogfish Amendment 3 considers the establishment of a research set aside program, updates to EFH definitions, year-end rollover of management measures and revisions to the quota allocation scheme. This would likely have positive impacts on human communities.

The Monkfish FMP has resulted in a reduction in fishing effort while the stock was rebuilding, which resulted in less revenue and a low negative impact on human communities. Over the long term, a sustainable monkfish fishery through management actions would result in long term beneficial impacts. Amendment 5 is currently considering a range of alternatives which would establish ACLs and AMs that would likely control fishing effort at a level that achieves optimum yield while preventing overfishing, which may continue the long-term positive effect.

Amendment 3 to the Skate FMP will likely have negative economic impacts on the ports and sector members because of the expected restrictions on fishing effort. Similarly, the actions of the HPTRP could have negative impacts, particularly if the impacts from this plan compound reductions implemented via Amendment 16.

Amendment 17 to the Northeast Multispecies FMP is an administrative action which would clarify and streamline the procedures and requirements with which NOAA-sponsored, state-operated permit banks must comply in order to lease allocation to a sector and sector vessels. Therefore, due to its administrative nature, Amendment 17 is projected to have negligible impacts on human communities. Amendment 17 would allow for NOAA-sponsored, state-operated permit banks to acquire and lease ACE (and DAS) to existing sectors (and sector vessels), and as such, the impacts associated with this transfer of ACE are similar to what are assessed in Section 5.1.3 of this document concerning the approval of sectors. As the MOAs between NMFS and the States' prohibit these permit banks from actively fishing acquired ACE, all impacts related to the goals and operation of the NOAA-sponsored, state-run permit banks, such as preserving fishing opportunities for small scale-fishing operations, mitigating the disproportionate impacts on small communities that may result from fleet consolidation, and effects on allocation market prices, are assessed under the approval of sector operations plans within this document. If no sector operations plans are approved, there would be minimal impact from the ability of a NOAA-sponsored, state-operated permit bank to acquire or lease ACE under Amendment 17, as they would have no ability to fish this ACE per the MOA, or to lease ACE to sectors.

Most of the measures in Amendment 15 to the Scallop FMP will not change economic impacts for the scallop fishery, or are expected to have indirect economic benefits. Amendment 15 would result in the establishment of AMs and a yellowtail flounder bycatch ACE. Because this yellowtail flounder bycatch ACE would be accounted for under Amendment 16 to the Multispecies FMP, the establishment of yellowtail flounder AMs are designed to rebuild the yellowtail flounder stocks and stabilize the fishing

industry, these actions are expected to have a low positive effect on the human communities that rely on groundfish. Further, the sub-ACL of yellowtail flounder would represent the amount that has been caught in the scallop fishery in the past; therefore, the AMs would apply to the scallop fishery (such as in the case of an overage), and not necessarily be applied against the sector's ACE. This would result in an additional positive impact on human communities, as the sector vessels would not likely be held accountable for an overage from the scallop fleet.

Framework 46 would increase the amount of haddock the herring fishery can catch before reaching its cap; however, it effectively does so by reallocating fish from the groundfish fishery. This can lead to negative *attitudes*, especially by smaller operators in the groundfish fleet who perceive the much larger herring vessels to be unfairly benefitted by these types of measures. Therefore, a negligible to low negative impact to human communities can be expected.

Framework 47 had negative impacts on human communities due primarily to the reduced the ABCs/ACLs for GOM cod and GB yellowtail flounder.

Future Actions: Cumulative effects of the EFH Omnibus Amendment cannot easily be determined. Similar to the 2010 modifications to the HPTRP, potential future modifications could result in additional reductions in fishing effort which would result in a negative impact on human communities.

Framework 48 to the multispecies FMP considers measures to reduce costs, add flexibility for groundfish vessels which would likely result in positive impacts to human communities. Framework 50 to the multispecies FMP is expected to result in reduced ACLs which would likely have negative impacts on human communities due to decreased fishing opportunity.

Summary of Impacts: As indicated in Table 5.2.3-1, the effects of past, present, and reasonably foreseeable future fishery management actions have been positive on nearly all VECs with the exception of human communities. Mandated reductions in fishing effort have resulted in negative economic impacts to human communities. Management measures designed to benefit protected resources and restrict fishing effort have low negative effects on the human communities. However, the establishment of ACLs through sectors and the ultimate goal of rebuilding groundfish stocks to sustainable levels will benefit the human communities eventually. Overall, the cumulative effect of past, present, and reasonably foreseeable future fishing actions have resulted in negative effects on human communities in the short term and a positive effect on human communities in the long-term.

5.2.4 Non-Fishing Effects: Past, Present, and Reasonably Foreseeable Future Actions

Non-fishing activities that occur in the marine nearshore and offshore environments and their watersheds can cause the loss or degradation of habitat and/or affect the species that reside in those areas. Table 5.2.4-1 provides a summary of past, present, and reasonably foreseeable non-fishing activities and their expected effects on VEC's in the affected environment. The following discussions of impacts are based on past assessments of activities and assume these activities will likely continue into the future as projects are proposed. More detailed information about these and other activities and their impacts are available in the publications by Hanson (2003) and Johnson et al. (2008).

Table 5.2.4-1
Summary of Effects on VECs from Past, Present, and Reasonably Foreseeable Non-fishing Actions in the Affected Environment

Non-Fishing Actions	Physical Environment Impacts	Biological Environment Impacts			Human Community Impact	
	Habitat	Allocated Target Species	Non-allocated Target Species and Bycatch	Protected Resources	Ports	Sector Participants
Past, Present, and Reasonably Foreseeable Future Actions						
General Construction and Development Activities	- in nearshore Likely L- in offshore	Likely L-	Likely L-	Likely L-	Negl	Negl
Point and non-point source (agricultural/urban runoff) pollution	- in nearshore L- in offshore	Likely L-	Likely L-	Likely L-	Negl	Negl
Offshore disposal of dredged materials	L-	Likely L-	Likely L-	Likely L-	Negl	Negl
Beach Nourishment	L-	Likely L-	Likely L-	Negl	Negl	Negl
Installation of offshore wind farm and infrastructure	Likely L-	Likely L-	Likely L-	Likely L-	Likely L-	Likely L-
Installation of infrastructure associated with liquefied natural gas terminal	Likely L-	Likely L-	Likely L-	Likely L-	Likely L-	Likely L-
Restoration Activities (wetland restoration, artificial reefs, eelgrass, etc…)	+	+	+	+	+	+
Implementation of National Marine Fisheries Service Final Rule on Ship Strike Reduction Measures	Likely Negl	Likely Negl	Likely Negl	Likely +	Likely Negl	Likely Negl
Summary of Impacts	**- to L-**	**L-**	**L-**	**L-**	**Negl to L-**	**Negl to L-**

Note:

Unless noted otherwise, the impacts of most of these actions are localized and although considered negative at the site, they have an overall low negative or negligible effect on each VEC due to limited exposure of action to the population or habitat as a whole.

Construction/Development Activities and Projects: Construction and development activities include, but are not limited to, point source pollution, agricultural and urban runoff, land (roads, shoreline development, wetland loss) and water-based (beach nourishment, piers, jetties) coastal development, marine transportation (port maintenance, shipping, marinas), marine mining, dredging and disposal of dredged material and energy-related facilities. All these activities are discussed in detail in Johnson et al. (2008). These activities can introduce pollutants (through point and non-point sources), cause changes in water quality (temperature, salinity, dissolved oxygen, suspended solids), modify the physical characteristics of a habitat or remove/replace the habitat altogether. Many of these impacts have occurred in the past and present and their effects would likely continue in the reasonably foreseeable future. It is likely that these projects would have negative impacts caused from disturbance, construction, and operational activities in the area immediately around the affected project area. However, given the wide distribution of the affected species, minor overall negative effects to offshore habitat, protected resources, allocated target stocks, and non-allocated target species and bycatch are anticipated since the affected areas are localized to the project sites, which involve a small percentage of the fish populations and their habitat. Thus, these activities for most biological VECs would likely have an overall low negative effect due to limited exposure to the population or habitat as a whole. Any impacts to inshore water quality from these permitted projects, including impacts to planktonic, juvenile, and adult life stages, are uncertain but likely minor due to the transient and limited exposure. It should be noted that wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality. As such, they may indirectly constrain the sustainability of the allocated target stocks, non-allocated target species and bycatch, and protected resources.

Restoration Projects: Regional projects that are restorative or beneficial in nature include estuarine wetland restoration, offshore artificial reef creation, and eelgrass (*Zostera marina*) restoration. These types of projects improve habitats, including nursery habitats for several commercial groundfish species. Due to past and present adverse impacts from human activities on these types of habitat, restorative projects likely have slightly positive effects at the local level.

Protected Resources Rules: The NMFS final Rule on Ship Strike Reduction Measures (73 FR 60173, October 10, 2008) is a non-fishing action in the U.S.-controlled North Atlantic that is likely to affect endangered species and protected resources. The goal of this rule is to significantly reduce the threat of ship strikes on North Atlantic right whales and other whale species in the region. Ship strikes are considered the main threat to North Atlantic right whales; therefore, NMFS anticipates this regulation will result in population improvements to this critically endangered species.

Energy Projects: Cape Wind Associates proposes to construct a wind farm on Horseshoe Shoal, located between Cape Cod and Nantucket Island in Nantucket Sound, Massachusetts. The Cape Wind Associates project would have 130 wind turbines located as close as 4.1 miles off the shore of Cape Cod in an area of approximately 24 square miles with the turbines being placed at a minimum of 1/3 of a mile apart. The turbines would be interconnected by cables, which would relay the energy to the shore-based power grid. If constructed, the turbines would preempt other bottom uses in an area similar to oil and natural gas leases. The potential impacts associated with the Cape Wind Associates offshore wind energy project include the construction, operation, and removal of turbine platforms and transmission cables; thermal and vibration impacts; and changes to species assemblages within the area from the introduction of vertical structures.

The Bureau of Ocean Energy Management (BOEM) published Notice of Intent to Prepare an Environmental Impact Statement for Potential Commercial Wind Lease Issuance and Approval of Construction and Operations Plan Offshore Maine" was published in the Federal Register on August 10, 2012. Statoil NA's proposed project, Hywind Maine, would consist of four 3- megawatt (MW) floating wind turbine generators (WTGs) configured for a total of 12 MW. The project would be located in water

depths greater than 100 meters approximately 12 nautical miles off the coast of Maine. Statoil NA's short-term objective is to construct the Hywind Maine project to demonstrate the commercial potential of the existing floating offshore Hywind technology. The company's long-term objective is to construct a full-scale, deepwater floating wind turbine facility that leverages economies of scale as well as technical and operational enhancements developed in the Hywind Maine project. The full-scale project would be subject to a subsequent and separate leasing and environmental review process.

BOEM also prepared an EA in July of 2013 considering the reasonably foreseeable environmental impacts and socioeconomic effects of issuing renewable energy leases and subsequent site characterization activities (geophysical, geotechnical, archaeological, and biological surveys needed to develop specific project proposals on those leases) in an identified Wind Energy Area on the OCS offshore Rhode Island and Massachusetts. This EA also considers the reasonably foreseeable environmental impacts associated with the approval of site assessment activities (including the installation and operation of meteorological towers and buoys) on the leases that may be issued in the Wind Energy Area.

Other offshore projects that can affect VECs include the construction of offshore liquefied natural gas facilities such as the Neptune liquefied natural gas facility approximately 10 miles off the coast of Gloucester, Massachusetts. The liquefied natural gas facility consists of an unloading buoy system where specially designed vessels moor and offload their natural gas into a pipeline, which delivers the product to customers in Massachusetts and throughout New England. As it related to the impacts of the Proposed Action, the Neptune liquefied natural gas facility is expected to have small, localized impacts where the pipelines and buoy anchors contact the bottom.

On December 1, 2010, the Obama administration announced there would be at least a seven year moratorium on oil and natural gas exploration on the Atlantic coast.

Summary of Impacts: Most of the impacts from these aforementioned activities are uncertain but would likely range from negative to low negative in the immediate areas of the project site. However, on a larger-scale population level, these activities are likely to have a low negative to negligible impact considering that the large portion of the populations have a limited or negligible exposure to these local non-fishing perturbations and that existing regulatory requirements would likely mitigate the severity of many impacts (see Table 5.2.4-1).

5.2.5 Summary of Cumulative Effects

The following analysis summarizes the cumulative effects of past, present, and reasonably foreseeable future actions in combination with the proposed action on the VECs identified in Section 5.1.

5.2.5.1 Physical Environment/Habitat/EFH

While the impact analysis in this action is focused on direct and indirect impacts to the physical environment and EFH, there are a number of non-fishing impacts that must be considered when assessing cumulative impacts. Many of these activities are concentrated near-shore and likely work either additively or synergistically to decrease habitat quality. In addition, the operation of vessels in all sectors would have negligible impacts on benthic/demersal habitat, since these vessels, under the No Action Alternative, would be in the common pool and would have fished in the same areas. Other non-fishing factors such as climate change and ocean acidification are also thought to play a role in the degradation of habitat. The effects of these actions, combined with impacts resulting from years of commercial fishing activity, have negatively affected habitat. However, impacts from the proposed action were found to be negligible. The combination of the current condition of the VEC combined with these past, present, and

reasonably foreseeable future actions when considered with the proposed action would not result in significant cumulative impacts.

5.2.5.2 Allocated Target Species

As found in the CEA for Amendment 16 to the FMP (NEFMC 2009a), the long-term trend has been positive for cumulative impacts to allocated target species. While several groundfish species remain overfished or overfishing is occurring, substantial effort reductions since implementation of the Northeast Multispecies FMP have allowed several stocks to rebuild and the rebuilding process for others is underway. Further, indirect impacts from the effort reductions in other FMPs are also thought to contribute to groundfish mortality reductions. In addition, the operation of vessels in all sectors would have negligible impacts on allocated target species, due to the imposition of an ACE for each allocated target species. Also, the effects from non-fishing actions are expected to be low negative as the potential for localized harm to VECs exists. These factors, when considered in conjunction with the proposed action which would have negligible impacts to allocated target species due to the implementation of an ACE, would not have any significant cumulative impacts. The combination of the current condition of the VEC combined with these past, present, and reasonably foreseeable future actions when considered with the proposed action would not result in significant cumulative impacts.

5.2.5.3 Non-allocated Target Species and Bycatch

The primary non-allocated target and bycatch species analyzed for the purposes of this EA are monkfish, spiny dogfish, and skates. The operation of vessels in all sectors would have negligible impacts on non-allocated target species and bycatch, because the catch rate for non-allocated target stocks are likely linked to that of allocated target stocks, the allocations of which are controlled by ACEs. The end result would be little if any increase in impacts to non-allocated target species and bycatch under sector management relative to the common pool. Management efforts in the past have led to each of these species being managed under their own FMP. One of the mandates of FMPs is to minimize bycatch and discard species. Therefore, with continued management actions, FMPs should have a positive impact on bycatch and discard species. The effects from non-fishing actions are expected to be low negative as the potential for localized harm to VECs exists. The combination of the current condition of the VEC combined with these past, present, and reasonably foreseeable future actions when considered with the proposed action would not result in significant cumulative impacts.

5.2.5.4 Protected Resources

The operation of all sectors may increase the potential for gear interactions with protected species, relative to the vessels operating in the common pool, due to several sector-specific exemptions. This potential increase in gear interaction would likely have low negative impacts on protected resources. Historically, the implementation of FMPs and sectors has resulted in reductions in fishing effort. As a result, past fishery management actions are thought to have had a slightly positive impact on strategies to protect protected species. Gear entanglement continues to be a source of injury or mortality, resulting in some adverse effects on most protected species to varying degrees. One of the goals of future management measures will be to decrease the number of marine mammal interactions with commercial fishing operations. Measures adopted by Amendment 16 and FW 44 to the Northeast Multispecies FMP substantially reduced the overall commercial fishing effort and the amount of groundfish that can be caught.. The cumulative result of these actions to meet mortality objectives are positive for protected resources. The effects from non-fishing actions are also expected to be low negative as the potential for localized harm to VECs exists. The combination of the current condition of the VEC combined with these past, present, and reasonably foreseeable future actions when considered with the proposed action would not result in significant cumulative impacts.

5.2.5.5 Human Communities and Social and Economic Environment

The operation of vessels in all sectors would have an overall low positive impact on human communities, including ports and sector participants, due to the increase in revenue, which would result from higher ex-vessel values with landings and more fish being landed because of the flexibility that sector management provides. Past management actions have had a negative impact on communities that depend on the groundfish fishery, particularly as a result of decreases in revenue. Although special programs implemented through Amendment 13 and subsequent framework actions have provided the industry additional opportunities to target healthier groundfish stocks, substantial increases in landings and revenue will likely not take place until further stock rebuilding occurs under the Amendment 16 rebuilding plan. The effects from non-fishing actions are also expected to be negligible to low negative as the potential for localized harm to VECs exists. Impacts, both positive and negative, from the Proposed Action would likely due little to change this finding. The combination of the current condition of the VEC combined with these past, present, and reasonably foreseeable future actions when considered with the proposed action would not result in significant cumulative impacts.

Conclusion

In conclusion, the summary of impacts from operations of all sectors and CEA Baseline would be negligible on habitat, allocated target species, and non-allocated target species and bycatch; likely low negative to protected resources; and low positive to human communities (Table 5.2.5-1). These impacts would not be significant due to the reasons stated in this assessment.

Table 5.2.5-1
Cumulative Effects Resulting from Implementation of the Proposed Action and CEA Baseline

		Habitat Impacts	Biological Impacts			Human Community Impacts	
		Habitat	**Allocated Target Species**	**Non-allocated Target Species and Bycatch**	**Endangered/ Protected Species**	**Ports**	**Sector Participants**
Cumulative Effect Baseline	Effects of All Sectors (see Table 5.2.2-1)	Negl	Negl	Negl	Negl	L+	L+
	Effects of Past, Present, and Reasonably Foreseeable Future Non-Fishing Actions (see Table 5.2.4-1)	- to L-	L-	L-	L-	Negl to L-	Negl to L-
	Effects of Past, Present, and Reasonably Foreseeable Future Fishing Actions (see Table 5.2.3-1)	+	+	+	+	-	-
Direct and Indirect Effects of Proposed Sector Operations (see Table 5.1.6-1)		Negl	Negl	Negl	Likely L-	L+	L+
Cumulative Effects Sum of Effects from implementation of Sector operations and Cumulative Effect Baseline		Negl	Negl	Negl	Likely L-	L+	L+

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7.0 PERSONS AND AGENCIES CONSULTED

Staff members of NMFS Northeast Regional Office and Northeast Fisheries Science Center were also consulted in preparing this EA. No other persons or agencies were consulted.

8.0 COMPLIANCE WITH APPLICABLE LAWS AND EXECUTIVE ORDERS

8.1 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Section 301 of the Magnuson-Stevens Act requires that FMPs contain conservation and management measures that are consistent with the ten National Standards. Changes implemented by Amendment 16 address how the proposed management actions comply with the National Standards. Under Amendment 16, the NEFMC adopted conservation and management measures that would end overfishing and rebuild Northeast Multispecies stocks to achieve, on a continuing basis, the optimum yield for Northeast Multispecies stocks and the U.S. fishing industry using the best scientific information available consistent with National Standards 1 and 2. Under FW 45, the NEFMC expanded and revised several measures, including additional conservation measures. The Northeast Multispecies FMP and implementing regulations manage all 20 groundfish stocks (13 species) throughout their entire range, as required by National Standard 3. Section 9.1.1 of Amendment 16 describes how the sector measures implemented under that action do not discriminate among residents of different states consistent with National Standard 4, do not have economic allocation as their sole purpose (National Standard 5), account for variations in these fisheries (National Standard 6), avoid unnecessary duplication (National Standard 7), take into account fishing communities (National Standard 8), addresses bycatch in fisheries (National Standard 9), and promote safety at sea (National Standard 10). By proposing to meet the National Standards requirements of the Magnuson-Stevens Act through future FMP amendments and framework actions, the NEFMC will ensure that overfishing is prevented, overfished stocks are rebuilt, and the maximum

benefits possible accrue to the ports and communities that depend on these fisheries and the Nation as a whole.

Annual review of sector operations plans ensures that proposed sector activities are consistent with the rebuilding plan for Northeast Multispecies stocks. The proposed action would comply with all elements of the Magnuson-Stevens Act, including the National Standards, and the Northeast Multispecies FMP. This action is being taken in conformance with the Northeast Multispecies FMP, which requires that an EA of sector operations plans be prepared in compliance with NEPA, Magnuson-Stevens Act, and other applicable laws and Executive Orders. Amendment 13 to the FMP established the sector operations plan approval process. Amendment 16 to the FMP authorized 17 new sectors and revised the regulations governing all 19 sectors. FW 45 to the FMP authorized 5 additional sectors. Nothing in this action changes the findings in Amendment 16 that this action complies with the provisions of the Magnuson-Stevens Act. There are no adverse impacts associated with this action, so no EFH assessment or EFH consultation is required, as determined by a Habitat Conservation Division Review on January 11, 2013.

8.2 ENDANGERED SPECIES ACT (ESA)

Section 7 of the Endangered Species Act requires federal agencies conducting, authorizing or funding activities that affect threatened or endangered species to ensure that those effects do not jeopardize the continued existence of listed species. On February 6, 2012, NMFS published final rules listing the GOM DPS of Atlantic sturgeon as threatened, and listing the New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs of Atlantic sturgeon as endangered, effective April 6, 2012. Preliminary analysis indicates that multiple Atlantic sturgeon DPSs may be affected by the continued operation of the NE multispecies fishery. Formal consultation under Section 7 of the ESA has been reinitiated and is ongoing for the NE multispecies fishery. The previous BO for the NE multispecies fishery completed in October 2010 concluded that the actions considered would not jeopardize the continued existence of any listed species. This BO will be updated and additional evaluation will be included to describe any impacts of the NE multispecies fishery on Atlantic sturgeon DPSs and define any measures needed to mitigate those impacts, if necessary. It is anticipated that any measures, terms and conditions included in an updated BO will further reduce impacts to the species. While it is likely that there will be interactions between Atlantic sturgeon and gear used in the groundfish fisheries, the amount of interactions attributable to this fishery that will occur between now and the time a final BO will be published is not likely to cause an appreciable reduction in survival and recovery of any of the five DPSs. NMFS determined in an August 28, 2012, memorandum that allowing the NE multispecies fishery to continue during the reinitiation period will not violate ESA sections 7(a)(2) and 7(d). This determination may be revised if an updated Biological Opinion is received.

Thus, NMFS has concluded, at this writing, that the proposed action and the prosecution of the multispecies fishery is not likely to jeopardize any ESA-listed species or alter or modify any critical habitat, based on the discussion of impacts in this document and on the assessment of impacts in the Amendment 16 Environmental Impact Statement. NMFS does acknowledge that endangered and threatened species may be affected by the measures proposed, but impacts should be minimal especially when compared to the prosecution of the fishery prior to implementation of Amendment 16. For further information on the potential impacts of the fishery and the proposed management action on listed species, see Sections 4.5.4, and 5.2.3.4 of this document.

4.5.4, and 5.2.3.4

8.3 MARINE MAMMAL PROTECTION ACT (MMPA)

NMFS has reviewed the impacts of the FY 2013 sector operations plans on marine mammals and concluded that the management actions proposed are consistent with the provisions of the MMPA and would not alter existing measures to protect the species likely to inhabit the management unit of the Northeast Multispecies FMP. For further information on the potential impacts of the proposed management action, see Sections 5.1.3, 5.1.4, 5.1.5 and 5.1.6.

8.4 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

NOAA Administrative Order 216-6 (May 20, 1999) contains criteria for determining the significance of the impacts of a Proposed Action. In addition, the CEQ regulations at 40 C.F.R. 1508.27 states that the significance of an action should be analyzed both in terms of "context" and "intensity." The Proposed Action in this EA is the approval of 17 sector Operations plans, and associated requests for exemptions from Federal fishing regulations. Each criterion listed below is relevant in making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NOAA Administrative Order criteria and CEQ's context and intensity criteria. These include:

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

Response: The Proposed Action would not jeopardize the sustainability of any of the target species identified in Section 4.3, because each sector has an Allowable Catch Entitlement (ACE) for each stock listed above that is a portion of the ACL established by the Northeast (NE) Multispecies FMP and that would be adhered to on an annual basis. The biological impacts of the Proposed Action on the allocated target species are analyzed in Section 5.1.

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

Response: The Proposed Action is not expected to jeopardize the sustainability of any non-allocated target species. If increased flexibility by the sectors improves the harvest of target species similarly to non-allocated target species and bycatch, then the relative catch rate of non-allocated target species and bycatch would be controlled by ACE. Once an ACE has been reached, fishing must cease. If sector members are able to successfully target certain allocated species, the amount of bycatch would decline relative to historical catch. The anticipated effect of the operations of the 17 sectors under allocations constrained by ACEs (as described in Amendment 16) would be to convert more vessel catch into landings and less into discards than if those same vessels were to fish within the Common Pool (Section 5.1).

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

Response: The Proposed Action is not expected to allow substantial damage to the ocean and coastal habitats and/or EFH as defined under the Magnuson-Stevens Act and identified in the FMP. Further, sectors and common pool vessels are likely to continue to use similar fishing gear and largely fish in the same locations, therefore the Proposed Action would likely have the same impacts on marine habitats or EFH as Common Pool vessels (Section 5.1).

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

Response: The Proposed Action is not expected to have a substantial adverse impact on public health and safety. The sectors would engage in routine fishing operations and would not affect safety at sea. Because fishing effort would be controlled by species-specific ACE rather than DAS, sector members would have increased flexibility to decide when to fish. This flexibility would likely increase revenues, allow fishermen to more fully exploit previously under-exploited stocks, and reduce incentive to fish in unsafe conditions (Section 5.1).

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

Response: The Proposed Action is not expected to have an adverse impact on endangered or threatened species, marine mammals, or critical habitat of these species. Sector members would utilize the same gear (primarily trawls, gillnets, traps/pots, and hook and line gear) utilized by the Common Pool. Impacts to cetaceans and pinnipeds from the use of gillnets would be minimized by use of the Take Reduction Plans, as discussed in Section 4.4.4. Trawl gear is generally considered to have low impacts on most protected resources. Hook and line gear is generally considered to have low impacts on most protected resources. Provisions of Amendment 16 exempt sectors from effort control measures (e.g., DAS limits, trip limits, area closures, and mesh size) which generally allow for an increased chance of interactions between sector vessels and protected resources due to fishing activities in previously closed areas and a potential increase in geardays.

As described in Sections 4.5.4, 5.2.3.4, and 8.2, NMFS has determined that the continued operation of the NE Multispecies FMP is not likely to jeopardize the continued existence of any listed species including any of the five Atlantic sturgeon DPS's. The NE multispecies fishery may interact with Atlantic sturgeon. However, the more recent, larger population estimate derived from NEAMAP data support (Kocik et al. 2013) the conclusion that the level of interactions with the NE multispecies fishery is not likely to have a significant adverse impact on the overall Atlantic sturgeon population, or any of the DPSs. Since the decision to list the Atlantic sturgeon DPSs as endangered and threatened under the ESA, the ESA Section 7 consultation for the NE multispecies fishery has been reinitiated and is ongoing. It is expected that an updated Biological Opinion will be issued during the 2013 NE multispecies fishing year that will contain additional evaluation to describe any impacts of the fisheries on Atlantic sturgeon and other listed species and define any measures needed to mitigate those impacts, if necessary.
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Overall, impacts to protected resources associated with operation of the 17 sectors would likely be low negative, but not significant (Section 5.1).

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

Response: The Proposed Action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. Implementation of sector operations plans would limit the amount of groundfish that each sector would be allowed to catch and land. Once the ACE has been reached, sector vessels would no longer be able to expend effort on catching groundfish.

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

Response: There are no significant social and economic impacts of the Proposed Action that are interrelated with natural or physical environmental effects. The Proposed Action would allocate ACE to each of the 17 sectors for 14 stocks of groundfish, thereby setting a limit on the amount of groundfish that each sector can catch. Sector members would be exempt from several restrictions of the FMP, however, sector members will primarily use trawl, gillnet, pot/trap, and hook and line gear, and maintain traditional fishing practices which will have no greater impact on habitat, protected species, or bycatch species as compared to the Common Pool and the groundfish fishery before sectors (Section 5.1). The operation of the 17 sectors would continue to mitigate the negative economic impacts that result from the current suite of regulations that apply to the groundfish fishery as well as meet the conservation requirements of the FMP. The operations plans allow flexibility and economic opportunity to the sector members and their communities. However, within the context of the region and the fishery as a whole, these benefits would be insignificant as determined under criteria of the Regulatory Flexibility Act (see Section 8.9). Further,

while the sector members benefit socially and economically by the ability to self-regulate, this opportunity is not related with any impacts associated with the biological or physical environment. Therefore, the social and economic impacts of the Proposed Action are not interrelated with significant natural or physical environmental effects.

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

Response: The effects of the Proposed Action on the quality of human environment are not expected to be highly controversial. Implementation of the sectors was approved by a majority of the NEFMC, and membership in a sector is voluntary. The Proposed Action is not expected to negatively impact habitat, allocated target species or non-allocated target species and bycatch, as described in Section 5.1. While the Proposed Action would likely result in low negative impacts to protected resources, these impacts, as discussed in Section 5.1, are not expected to be significant.

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

Response: It is possible that historic or cultural resources such as shipwrecks could be present in the area where the groundfish fishery is prosecuted. However, vessels try to avoid fishing too close to wrecks due to the possible loss or entanglement of fishing gear. Therefore, it is not likely that the proposed action would result in substantial impacts to unique areas.

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

Response: The effects of the Proposed Action on the human environment are not expected to be highly uncertain or involve unique or unknown risks. The Final Rule approving the 2013 operations plans would allocate ACE to each sector, which sets a limit on the amount of each the groundfish stocks that each sector can catch, while minimizing regulatory discards, resulting in positive benefits to the allocated target species, non-allocated target species, and bycatch species. Sector members would be exempt from several restrictions of the FMP, however, each sector would primarily use trawl, gillnet, trap/pot, and hook and line gear and maintain traditional fishing practices which would have no greater impact on habitat, protected species, and bycatch species as compared to the Common Pool (Section 5.1). Implementation of the Final Rule would mitigate impacts of Amendment 13, FW 42, and Amendment 16 to the NE Multispecies FMP on human communities by conveying environmental, social, and economic benefits directly to sector members and thereby to the communities identified in Section 4.5, while at the same time meeting the conservation requirements of the FMP. Sectors have been in operation in the New England groundfish fishery since 2004; therefore, the effects on the human environment are not uncertain or involve unique or unknown risks.

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

Response: The CEA presented in Section 5.2 of this document considers the impacts of the Proposed Action in combination with relevant past, present, and reasonably foreseeable future actions and concludes that no significant cumulative impacts are expected from the implementation of the Proposed Action. Further, the Proposed Action would not have any significant impacts when considered individually or in conjunction with any of the other actions presented in Section 5.2 (fishing related and non-fishing related).

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

Response: Although there are shipwrecks present in areas where fishing occurs, including some registered on the National Register of Historic Places, vessels try to avoid fishing too close to wrecks due to the possible loss or entanglement of fishing gear. Therefore, it is not likely that the proposed action would adversely affect the historic resources.

13. *Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?*

Response: No non-indigenous species would be introduced during the Proposed Action because operation of the 17 sectors is confined to traditional fishing practices, and no non-indigenous species would be used or transported during the sectors' activities. Therefore, the Proposed Action would not be expected to result in the introduction or spread of a non-indigenous species.

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

Response: The NEFMC has authorized the formation of multiple sectors under Amendment 16 and FW 45 to the NE Multispecies FMP and has set forth criteria for establishing sectors in this action. The Proposed Action was initiated in response to these actions and does not set a precedent because it abides by the criteria set forth in Amendment 16 and FW 45. However, it should be noted that while Amendment 16 and FW 45 established multiple sectors and the process of their allocation, each sector proposal and each operations plan and allocation is considered individually on its own merits and expected impacts, and includes a specified process for public comment and consideration. Further, each sector must submit their operations plan annually or biannually for approval. Therefore, the Proposed Action is not likely to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration.

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

Response: The Proposed Action is not expected to threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment. In addition to the harvest rules of each sector, sectors would comply with all local, regional, and national laws and permitting requirements.

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

Response: The Proposed Action is not expected to result in cumulative adverse effects that could have a substantial effect on target or non-target species. As stated in Section 5.1, and 5.2, the impact on resources encompassing groundfish and other stocks is expected to be minimal.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting EA prepared for the approval of the 17 FY 2013 sector operations plans and associated exemptions from specific fisheries regulations, it is hereby determined that the approval of the 17 FY 2013 sector operations plans and associated exemptions from specific fisheries regulations, will not significantly impact the quality of the human environment as described above and in the supporting EA. In addition, all beneficial and adverse impacts of the Proposed Action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an EIS for this action is not necessary.

Regional Administrator Northeast Region, NMFS

Date 4/19/13

8.5 ADMINISTRATIVE PROCEDURE ACT (APA)

The Assistant Administration for Fisheries (AA) finds that there is adequate justification under 5 U.S.C. § 553(d)(1) to waive the 30-day delay in effective date because this rule relieves several restrictions. This rule helps the NE multispecies fishery mitigate the adverse economic impacts resulting from continued efforts to end overfishing and rebuild overfished stocks, and increases the economic efficiency of vessel operations through the authorization of 17 sector operations plans for FY 2013. As explained in detail above, 25 exemptions from NE multispecies regulations are proposed for FY 2013, which provide increased flexibility to all of the sectors by exempting them from effort control restrictions and administrative burdens that would be onerous for fishing vessels whose fishing activity is constrained by a hard quota.

8.6 PAPERWORK REDUCTION ACT (PRA)

The purpose of the PRA is to control and, to the extent possible, minimize the paperwork burden for individuals, small businesses, nonprofit institutions, and other persons resulting from the collection of information by, or for, the Federal Government. PRA for data collections relating to sectors have been considered and evaluated under Amendment 16 to the FMP and approved by the Office of Management and Budget under Office of Management and Budget Control Number 0648-0605. This action relies upon the existing collections, including those approved by the Office of Management and Budget under Amendment 16, and does not propose to modify any existing collections or to add any new collections. Therefore, no review under the PRA is necessary for this action.

8.7 COASTAL ZONE MANAGEMENT ACT (CZMA)

Section 307(c)(1) of the CZMA requires that all Federal activities which affect any coastal use or resource be consistent with approved state coastal zone management programs (CZMP) to the maximum extent practicable. NMFS has reviewed the relevant enforceable policies of each coastal state in the NE region for this action and has determined that this action is incremental and repetitive, without any cumulative effects, and is consistent to the maximum extent practicable with the enforceable policies of the CZMP of the following states: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, and North Carolina. NMFS finds this action to be consistent with the enforceable policies to manage, preserve, and protect the coastal natural resources, including fish and wildlife, and to provide recreational opportunities through public access to waters off the coastal areas. Pursuant to the general consistency determination provision codified at 15 CFR 930.36(c), NMFS sent a general consistency determination applying to the current Northeast Multispecies FMP, and all routine Federal actions carried out in accordance with the FMP, to the following states:

Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, and North Carolina on October 21, 2009.

8.8 INFORMATION QUALITY ACT (IQA)

Pursuant to NOAA guidelines implementing Section 515 of Public Law 106-554 (the Data Quality Act), all information products released to the public must first undergo a Pre-Dissemination Review to ensure and maximize the quality, objectivity, utility, and integrity of the information (including statistical information) disseminated by or for federal agencies. The following section addresses these requirements.

Utility

This environmental assessment (EA) for the FY 2013 operations plans for 17 sectors presents a description of the purpose and need of the proposed action (approval of the sector operations plans), the measures proposed, and the impacts of those measures. A discussion of the reasons for the action is included so that intended users may have a full understanding of the action and its implications. Once a final rule is published, it will be the principal means by which the information pertinent to the proposed operations plan will be made available to the public. The final rule will have specific information on the preliminary number of participants and allocations for each sector. The EA contains the various elements of interest to the public that are necessary for decision makers to make informed decisions based on accurate information. The operations plans are consistent with the NE Multispecies FMP and the conservation and management goals of the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

The intended users of the information product are participants of the NE multispecies fishery, industry members and other interested members of the public, members of the New England Fishery Management Council (Council), and the National Marine Fisheries Service (NMFS). The principle elements of the approved sector operations plans for FY 2013 are the same as those in effect for the 17 sectors approved to operate in FY 2012, though the sectors have been granted several novel exemptions for FY 2013. The EA is tiered from the environmental impact statement developed for Amendment 16 to the NE Multispecies FMP and incorporates the most recent information available.

The sector operations plans and EA are available in printed format and will be available in PDF format online through www.regulations.gov. The final rule, once published in the Federal Register, will be made available as a printed publication, and on the www.regulations.gov website. The Federal Register documents will provide metric conversions for all units of measurement.
Integrity

Prior to dissemination, information associated with this action, independent of the specific intended distribution mechanism, is safeguarded from improper access, modification, or destruction, to a degree commensurate with the risk and magnitude of harm that could result from the loss, misuse, or unauthorized access to or modification of such information. All electronic information disseminated by NMFS adheres to the standards set out in Appendix III, "Security of Automated Information Resources," of Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Act. All confidential information (e.g., dealer purchase reports) is safeguarded pursuant to the Privacy Act; Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business, and financial information); the Confidentiality of Statistics provisions of the Magnuson Act; and NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics.

Objectivity

For the purposes of the Pre-Dissemination Review, this EA is considered to be a "Natural Resource Plan." Accordingly, the document adheres to the published standards of the Magnuson-Stevens Act; the Operational Guidelines, Fishery Management Plan Process; the EFH Guidelines; the National Standard

Guidelines; and NOAA Administrative Order 216-6, Environmental Review Procedures for Implementing the NEPA.

This information product uses information of known quality from sources acceptable to the relevant scientific and technical communities. Stock status (including estimates of biomass and fishing mortality) reported in this product are based on either assessments subject to peer-review through the Stock Assessment Review Committee, or on updates of those assessments prepared by scientists of the Northeast Fisheries Science Center. Landing and revenue information is based on information collected through Vessel Trip Report and Commercial Dealer databases, as well as the Amendment 16 EIS and the GARM III report. These reports are developed using an approved, scientifically valid sampling process. In addition to these sources, additional information is presented that has been accepted and published in peer-reviewed journals or by scientific organizations. Original analyses in this EA build upon the analyses contained in the Amendment 16 EIS, and were prepared using data from accepted sources, and the analyses have been reviewed by NOAA.

Despite current data limitations, the measures for this action were selected based upon the best scientific information available. The analyses conducted in support of the action were both quantitative and qualitative, and tier off analyses in the Amendment 16 EIS, which were conducted using information from the most recent complete fishing year at the time they were developed. The data used in the analyses provide the best available information on the state of each species regulated under the FMP (i.e., GARM III, September 2008; and the DPWG 2009), species and EFH data from NOAA, and fishery landings through FY 2010. Specialists (including professional members of plan development teams, technical teams, committees, and Council staff) who worked with these data are familiar with the most current analytical techniques and with the available data and information relevant to the state of the regulated fisheries under the FMP, fishing techniques in the approved FY 2012 sectors, and the socio-economic impacts of the fisheries on impacted communities.

The policy choices are clearly articulated in Section 3 of this document, as the management alternatives considered in this action. The supporting science and analyses, upon which the policy choices are based, are summarized and described, or incorporated by reference, in Sections 4 and 5 of this EA. All supporting materials, information, data, and analyses within this document have been, to the maximum extent practicable, properly referenced according to commonly accepted standards for scientific literature to ensure transparency.

The review process used in preparation of this EA involves the Northeast Fisheries Science Center, the Northeast Regional Office, and NMFS Headquarters. The Center's technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, demersal resources, population biology, and the social sciences. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the action in this EA and clearance of any rules prepared to implement resulting regulations is conducted by staff at NMFS Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

8.9 REGULATORY FLEXIBILITY ACT (RFA)

The Regulatory Flexibility Act (RFA), 5 U.S.C. 601-612, requires agencies to assess the economic impacts of their proposed regulations on small entities. The objective of the RFA is to consider the impacts of a rulemaking on small entities, and the capacity of those affected by regulations to bear the direct and indirect costs of regulation. Size standards have been established for all for-profit economic activities or industries in the North American Industry Classification System. The SBA defines a small business in the commercial fishing and recreational fishing sector, as a firm with receipts (gross revenues) of up to $4 million. Section 3 of the Small Business Act defines affiliation as: Affiliation may arise among two or more persons with an identity of interest. Individuals or firms that have identical or substantially identical business or economic interests (such as family members, individuals or firms with

common investments, or firms that are economically dependent through contractual or other relationships) may be treated as one party with such interests aggregated (13 CFR 121.103(f)).

An Initial Regulatory Flexibility Analysis (IRFA) has been prepared, as required by section 603 of the RFA. The Final Regulatory Flexibility Analysis (FRFA) will be prepared after the comment period for this proposed rule, and will be published with the final rule. The IRFA describes the economic impact that this proposed rule, if adopted, would have on small entities. The IRFA consists of this section, the SUMMARY section of the preamble of this proposed rule, and the EA prepared for this action. A description of the action, why it is being considered, and the legal basis for this action are contained in the preamble to this proposed rule and in Sections 1.0, 2.0, and 3.0 of the EA prepared for this action, and is not repeated here. A summary of the analysis follows. A copy of this analysis is available from NMFS.

Need for, and Objectives of, this Rule

Approval of sector operations plans is necessary to allocate quota to the sectors and to grant the sectors regulatory exemptions. The intended effect is to provide vessels participating in sectors with increased operational flexibility. The flexibility afforded sectors includes exemptions from certain specified regulations. The objective of the action is to authorize the operations of 17 sectors in FY 2013, and to allow the permits enrolled in sectors and the New England communities where they dock and land, to benefit from sector operations.

Summary of Public Comments

All public comments, including those in response to the IRFA and comments regarding the economic effects of the rule not specifically addressed to the IRFA, and our response to those comments will be contained in the preamble to the final rule.

Description and Estimate of the Number of Small Entities Affected

This action will likely affect approximately 303 ownership entities, which represents the number of entities we expect to enroll in sectors that have requested exemptions. A total of 301 ownership entities would be considered a small entity, based on the definition as stated above. The economic impact resulting from this action on these small entities is positive, since the action, if implemented, would provide additional operational flexibility to vessels participating in NE multispecies sectors for FY 2013. In addition, this action would further mitigate negative impacts from the implementation of Amendment 16, FW 44, and FW 45, and upcoming FW 48, and FW 50, which have placed additional effort restrictions on the NE multispecies fleet.

The SBA size standard for commercial fishing entities(North American Industry Classification System code 114111) is $4 million in annual sales. Section 3 of the Small Business Act defines affiliation as: Affiliation may arise among two or more persons with an identity of interest. Individuals or firms that have identical or substantially identical business or economic interests (such as family members, individuals or firms with common investments, or firms that are economically dependent through contractual or other relationships) may be treated as one party with such interests aggregated (13 CFR 121.103(f)). We have recently worked to identify ownership affiliations, and incorporated that data into this analysis; consequently, this analysis may differ from analysis conducted in previous years. Although work to more accurately identify ownership affiliations is ongoing; for the purposes of this analysis, ownership entities are defined as an association of fishing permits held by common ownership personnel as listed on permit application documentation. Only permits with identical ownership personnel are categorized as an ownership entity. The maximum number of entities that could be affected by the proposed exemptions is expected to be approximately 303 ownership entities (301 qualifying as small entities) - the number of entities anticipated to enroll in the 17 sectors that have submitted an operations plan for FY 2013. Since individuals may withdraw from a sector at any time prior to the beginning of FY 2013, the number of permits participating in sectors on May 1, 2013, and the resulting sector ACE allocations, are likely to change. Additionally, new permit holders who acquire their permits through an

ownership change that occurred after December 1, 2012, may enroll their permit in a sector or change the permit's sector affiliation through April 30, 2013.

Reporting, Recordkeeping and Other Compliance Requirements

This rule contains no collection-of-information requirement subject to the Paperwork Reduction Act. This action reduces reporting requirements compared to the no-action alternative. Exemptions implemented through this action are documented in a letter of authorization (LOA) issued to each vessel participating in an approved sector. The exemptions from the 20-day spawning block and the 120-day gillnet block will reduce the reporting burden for sector vessels, because exemptions from these requirements eliminate the need to report the blocks to the NMFS Interactive Voice Response system.

Sector vessels exempt from the gillnet limit (up to 150 nets) are also exempt from current tagging requirements, and are instead required to tag gillnets with one tag per net. Compliance with the tagging requirement will not necessarily require sector vessels to purchase additional net tags, as each vessel is already issued up to 150 tags. However, sector vessels that have not previously purchased the maximum number of gillnet tags may find it necessary to purchase additional tags to comply with this requirement at a cost of $1.20 per tag.

The exemption to allow a vessel to haul another vessel's gillnet gear requires each vessel to tag all gear it is authorized to haul. Because of the existing 150-tag limit, no additional tags may be purchased.

The exemption from the limit on the number of hooks does not involve reporting requirements, but may result in increased costs for hooks and rigging (groundline, gangions, anchors) if a vessel chooses to increase the amount of gear fished. Circle hooks of the legal minimum size (12/0) cost about $0.19 each without rigging.

The GOM Sink Gillnet exemption does not involve additional reporting requirements. However, to use this exemption, sector vessels need to purchase 6-inch (15.2-cm) mesh gillnet nets. At the time this FRFA was prepared, no cost information was available for a 6-inch (15.2-cm) mesh gillnet panel. However, the cost of a 6.5-inch (16.5-cm) mesh 300-ft (91.4-m) gillnet panel, complete with floats and break-away links, is estimated at $310. The quantity of 6-inch (15.2-cm) mesh gillnets purchased by a vessel to participate in this program will depend on the vessel's gillnet designation (a Day gillnet vessel would have a 150-net limit) and the perceived economic benefits of utilizing the exemption, which may be based on market conditions.

In order to utilize the exemption from the minimum trawl mesh size to target redfish, an ownership entity would need to purchase or utilize a codend of small mesh. At the time this IRFA was prepared, no cost information was available for a 4.5-inch (11.43-cm) mesh codend. The purchase of a 4.5-inch (11.43-cm) mesh codend would depend on a ownership entities perceived economic benefit of utilizing the exemption, which may be based on market conditions.

Exempting sectors from the requirement to submit a daily catch report for all vessels participating in the CA I Hook Gear Haddock SAP does not change the reporting burden of individual participating vessels, as the vessels would merely change the recipient of their current daily report.

Other exemptions granted by this action involve no additional reporting requirements. Sector reporting and recordkeeping regulations do not exempt participants from state and Federal reporting and recordkeeping, but are mandated above and beyond current state and Federal requirements. A full list of compliance, recording, and recordkeeping requirements exists in the final rules implementing Amendment 16 and each approved FY 2013 sector operations plan.

Steps the Agency has Taken to Minimize Significant Adverse Economic Impact on Small Entities

This action will create a positive economic impact for the participating sector vessels because it mitigates the impacts from restrictive management measures implemented under NE Multispecies FMP. Little quantitative data on the precise economic impacts to individual vessels is available. The 2011 Final Report on the Performance of the Northeast Multispecies (Groundfish) Fishery (May 2011 – April 2012) (copies are available from NMFS) documents that all measures of gross nominal revenue per trip and per day absent in 2011 were higher for the average sector vessel and lower for the average common pool vessel, except for average revenue per day on a groundfish trip for vessels under 30' in length and for vessels 75' and above. However, the report stipulates this comparison is not useful for evaluating the relative performance of DAS and sector–based management because of fundamental differences between these groups of vessels, which were not accounted for in the analyses. Accordingly, quantitative analysis of the impacts of sector operations plans is still limited. NMFS anticipates that by switching from effort controls of the common pool regime to operating under a sector ACE, sector members will remain economically viable while adjusting to changing economic and fishing conditions. Thus, this action provides benefits to sector members that they would not have under the No Action Alternative. The preamble discusses reasons for approval or disapproval of each requested exemption.

Section 212 of the Small Business Regulatory Enforcement Fairness Act of 1996 states that, for each rule or group of related rules for which an agency is required to prepare an IRFA, the agency shall publish one or more guides to assist small entities in complying with the rule, and shall designate such publications as "small entity compliance guides." The agency shall explain the actions a small entity is required to take to comply with a rule or group of rules. As part of this rulemaking process, a LOA for each permit holder enrolled in a sector and a small entity compliance guide (or fishery bulletin) will be prepared. Copies of this proposed rule are available from the Northeast Regional Office, and the small entity compliance guide, i.e., fishery bulletin, will be sent to all holders of NE multispecies permits enrolled in a sector after the final rule publishes. Once completed, the fishery bulletin and the final rule will be available upon request.

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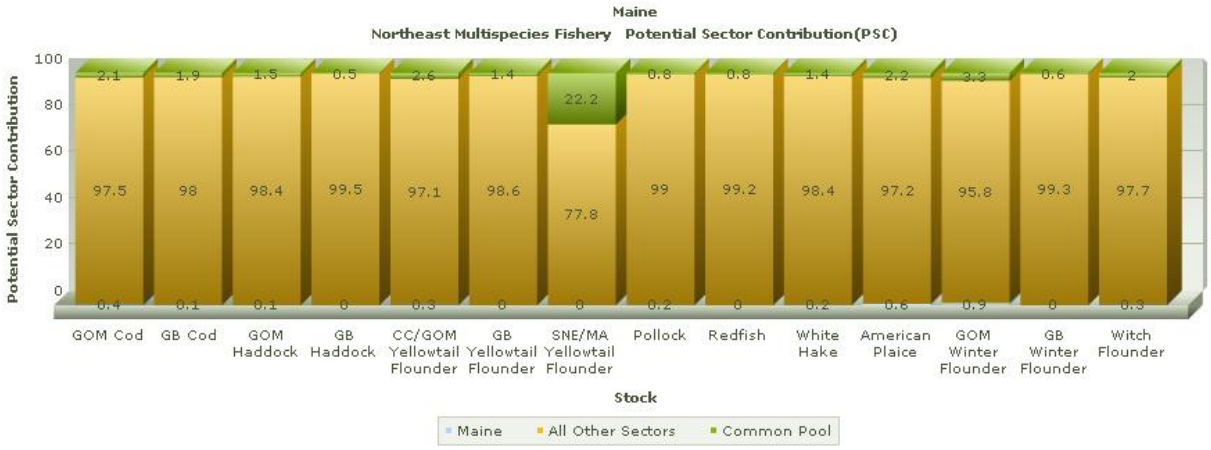
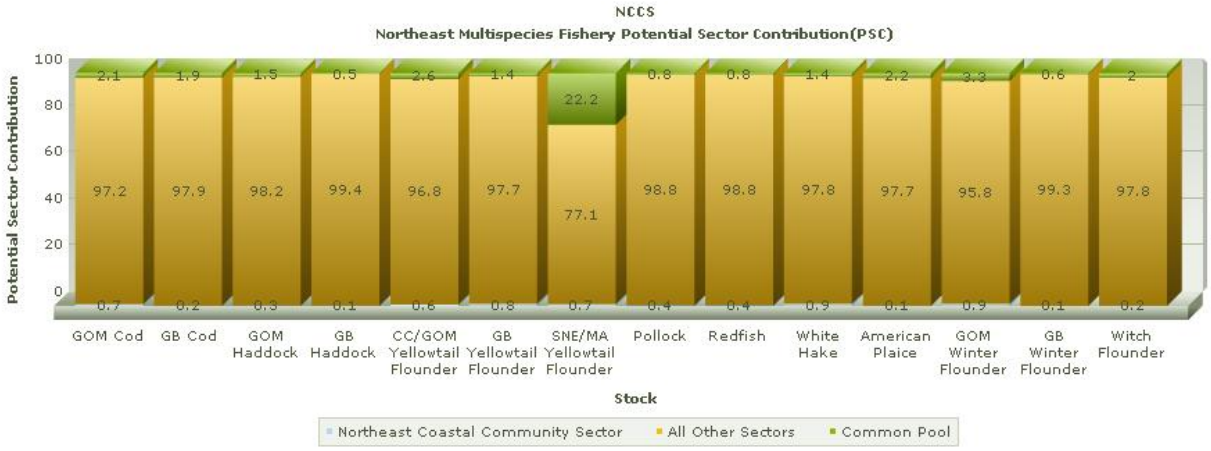
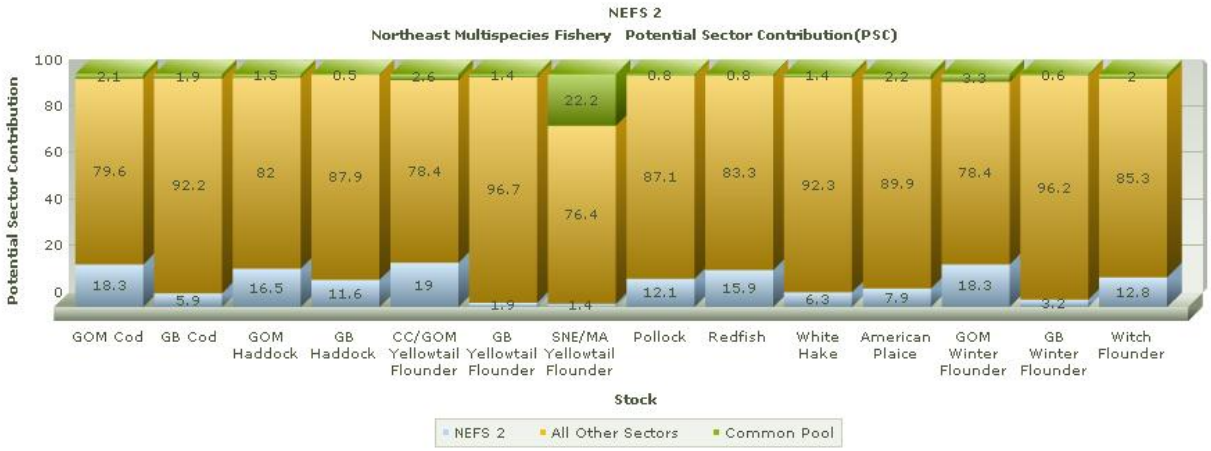
APPENDIX A: FY 2012 SECTOR PSC BY ALLOCATED TARGET STOCK COMPARED TO ALL OTHER SECTORS AND THE COMMON POOL






NEFS 2
Northeast Multispecies Fishery Potential Sector Contribution(PSC)
Potential Sector Contribution
100
80
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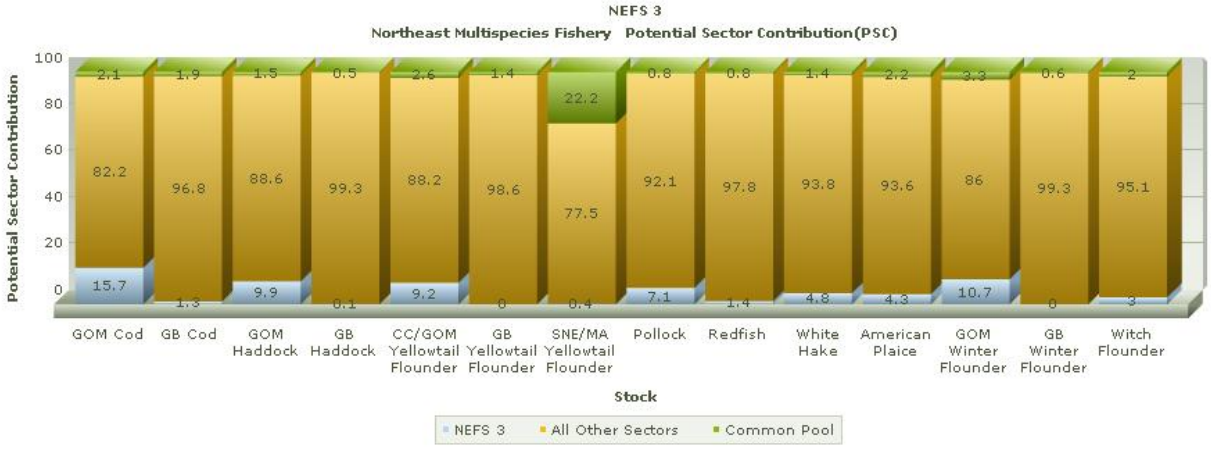
2.1 1.9 1.5 0.5 2.6 1.4 22.2 0.8 0.8 1.4 2.2 3.3 0.6 2
79.6 92.2 82 87.9 78.4 96.7 76.4 87.1 83.3 92.3 89.9 78.4 96.2 85.3
18.3 5.9 16.5 11.6 19 1.9 1.4 12.1 15.9 6.3 7.9 18.3 3.2 12.8
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
NEFS 2
All Other Sectors
Common Pool


NEFS 3
Northeast Multispecies Fishery Potential Sector Contribution(PSC)
Potential Sector Contribution
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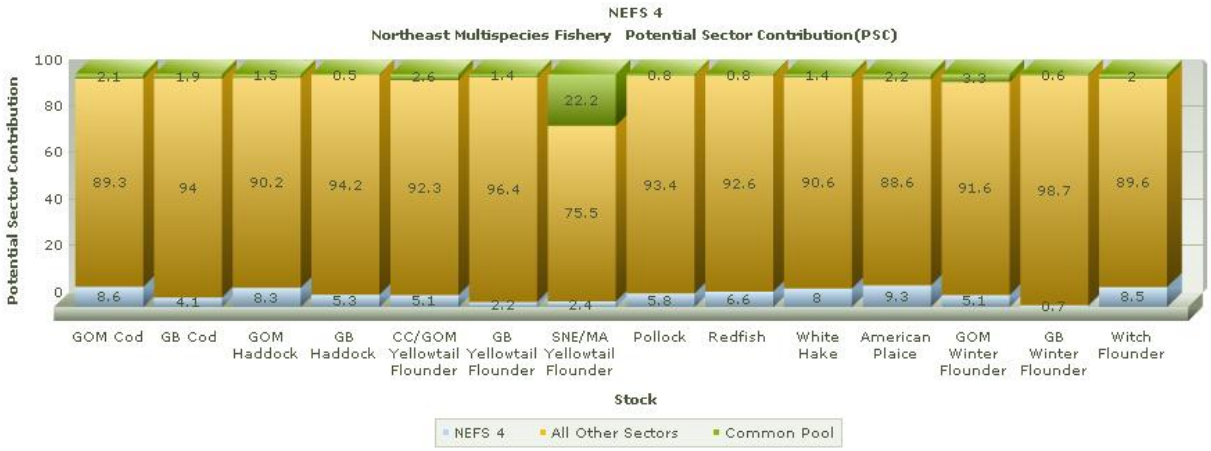
15.7 1.3 9.9 0.1 9.2 0 0.4 7.1 1.4 4.8 4.3 10.7 0 3
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
NEFS 3
All Other Sectors
Common Pool


NEFS 4
Northeast Multispecies Fishery Potential Sector Contribution(PSC)
Potential Sector Contribution
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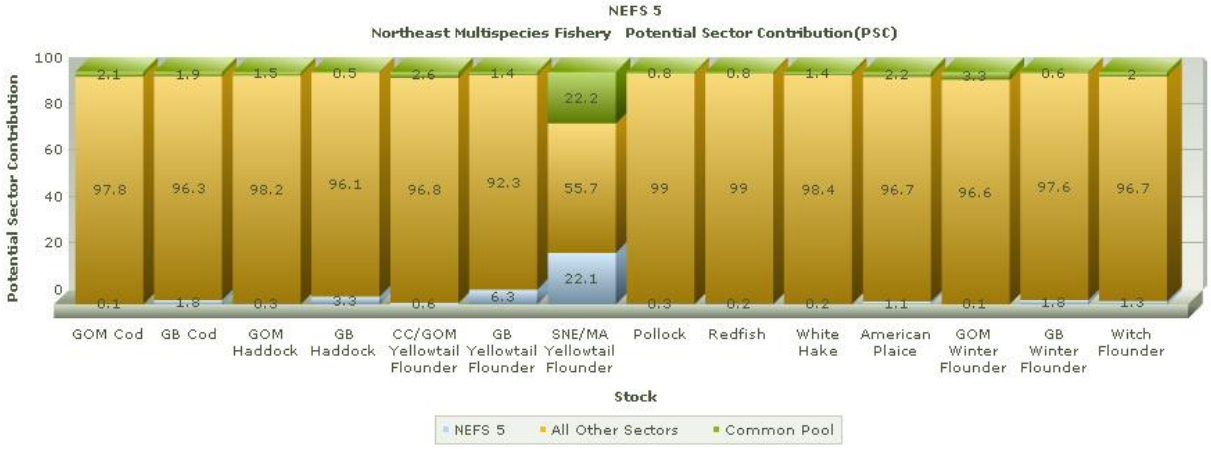
8.6 4.1 8.3 5.3 5.1 2.2 2.4 5.8 6.6 8 9.3 5.1 0.7 8.5
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
NEFS 4
All Other Sectors
Common Pool


NEFS 5
Northeast Multispecies Fishery Potential Sector Contribution(PSC)
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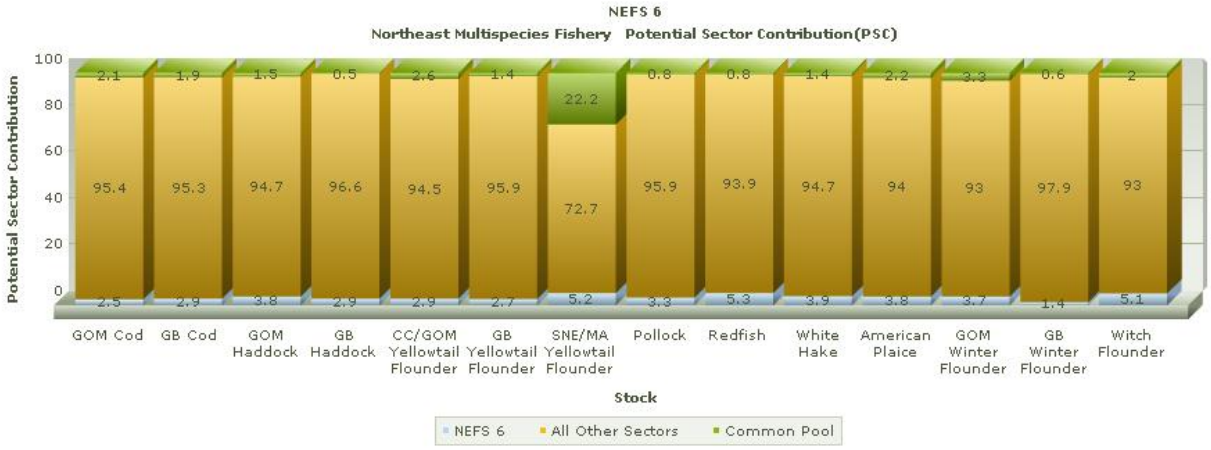
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
NEFS 5
All Other Sectors
Common Pool


NEFS 6
Northeast Multispecies Fishery Potential Sector Contribution(PSC)
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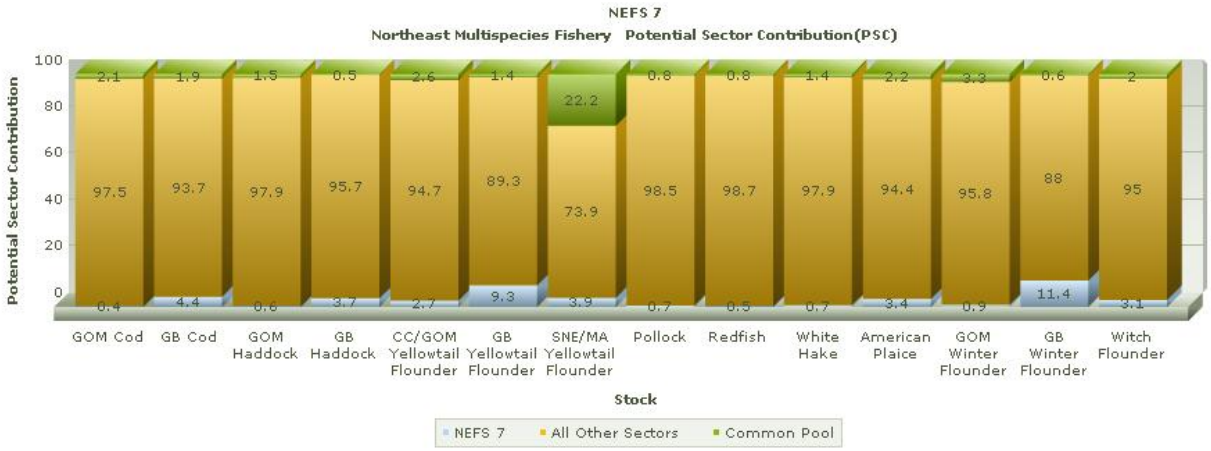
2.5 2.9 3.8 2.9 2.9 2.7 5.2 3.3 5.3 3.9 3.8 3.7 1.4 5.1
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
NEFS 6
All Other Sectors
Common Pool


NEFS 7
Northeast Multispecies Fishery Potential Sector Contribution(PSC)
Potential Sector Contribution
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GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
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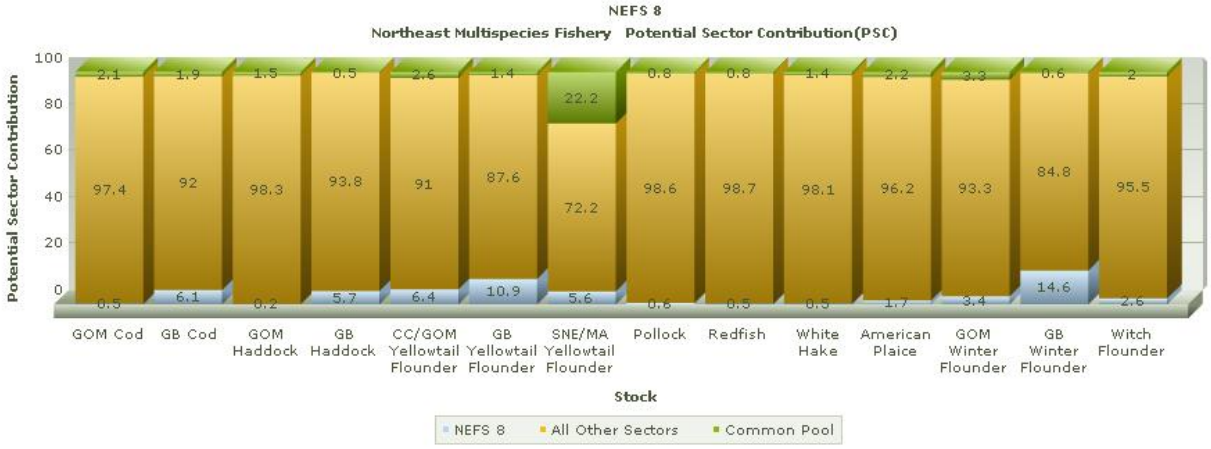
Witch Flounder
Stock
NEFS 7
All Other Sectors
Common Pool


NEFS 8
Northeast Multispecies Fishery Potential Sector Contribution(PSC)
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GOM Cod
GB Cod
GOM Haddock
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CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
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Stock
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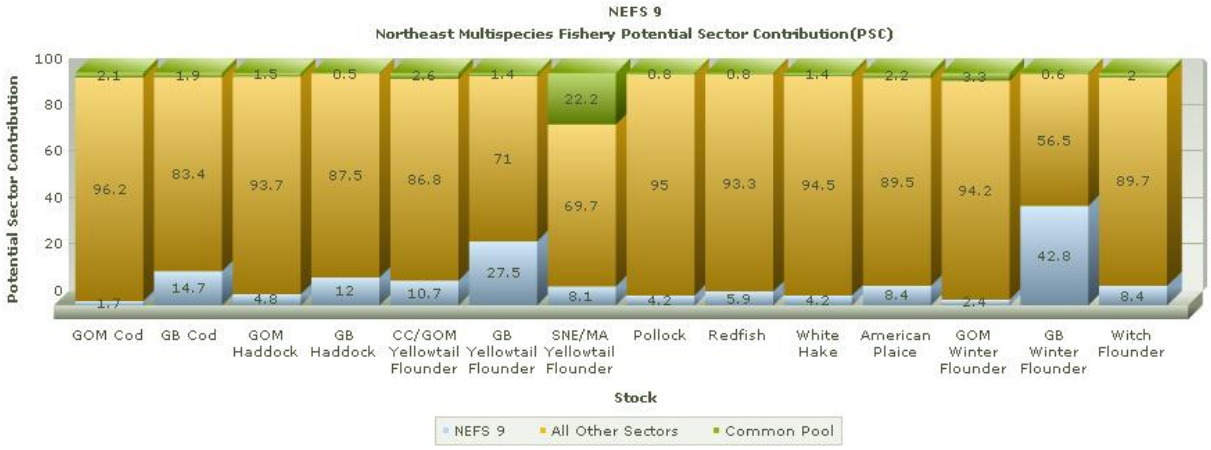
All Other Sectors
Common Pool


NEFS 9
Northeast Multispecies Fishery Potential Sector Contribution(PSC)
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1.7 14.7 4.8 12 10.7 27.5 8.1 4.2 5.9 4.2 8.4 2.4 42.8 8.4
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
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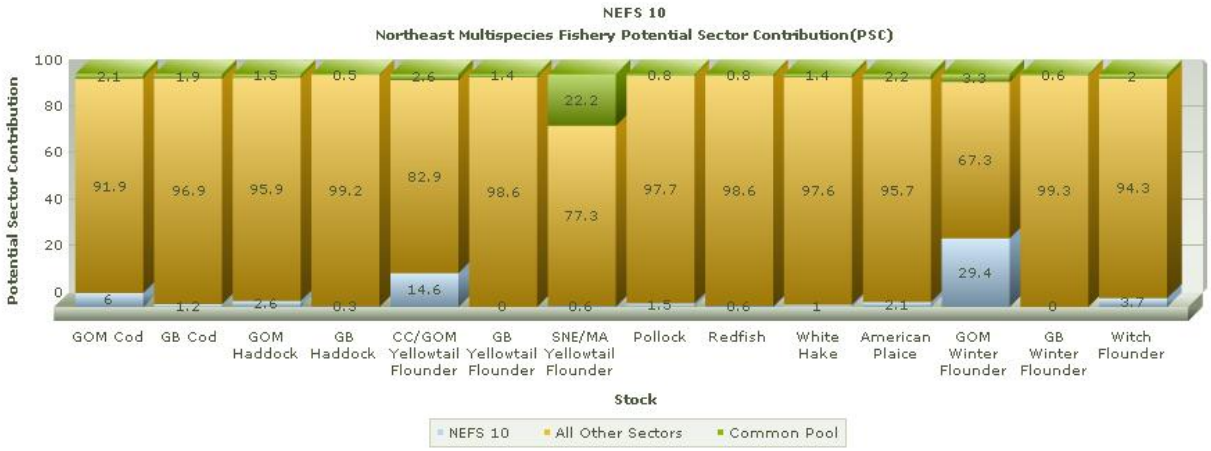
Common Pool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Potential Sector Contribution
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60
40
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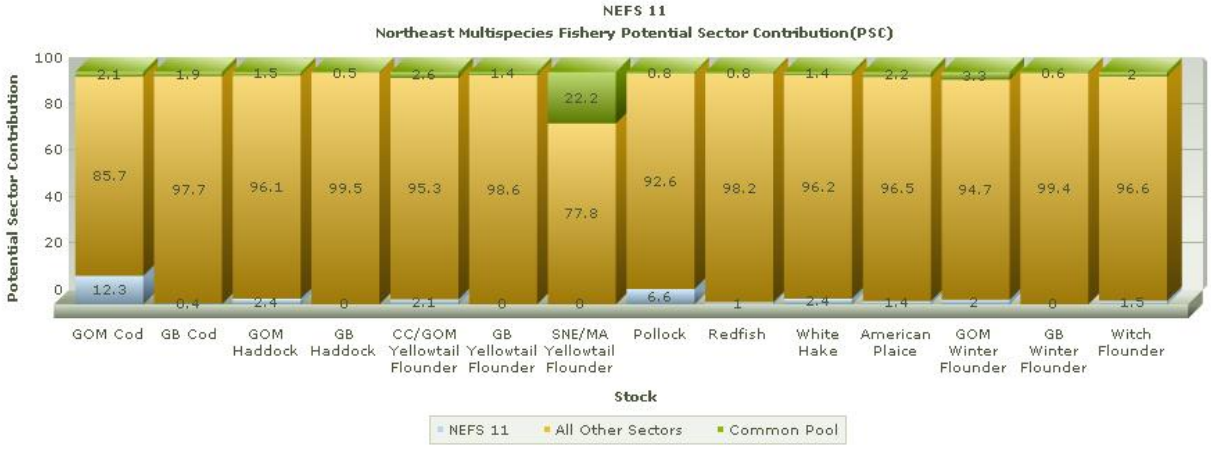
6 1.2 2.6 0.3 14.6 0 0.6 1.5 0.6 1 2.1 29.4 0 3.7
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
NEFS 10
All Other Sectors
Common Pool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GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
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SNE/MA Yellowtail Flounder
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Redfish
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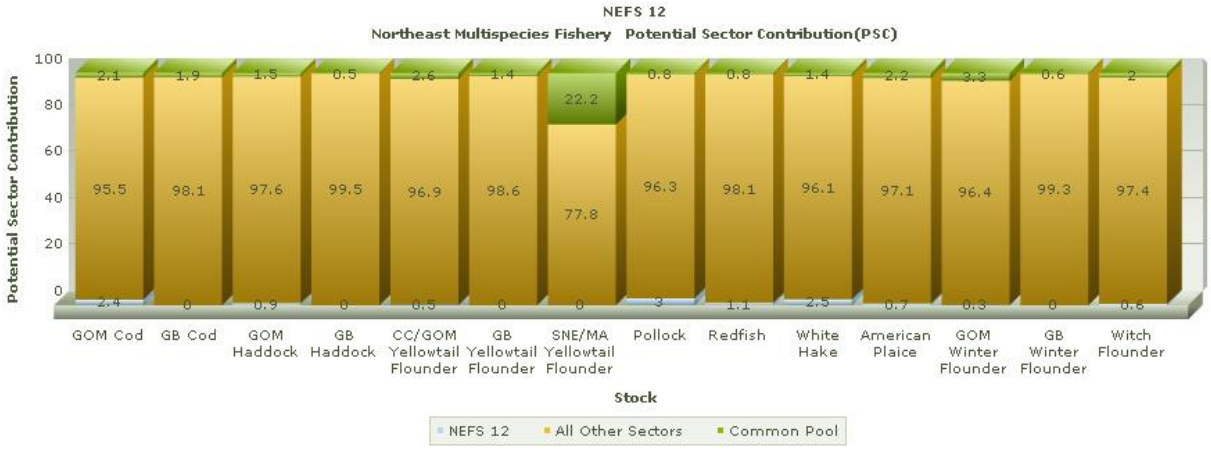
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
NEFS 11
All Other Sectors
Common Pool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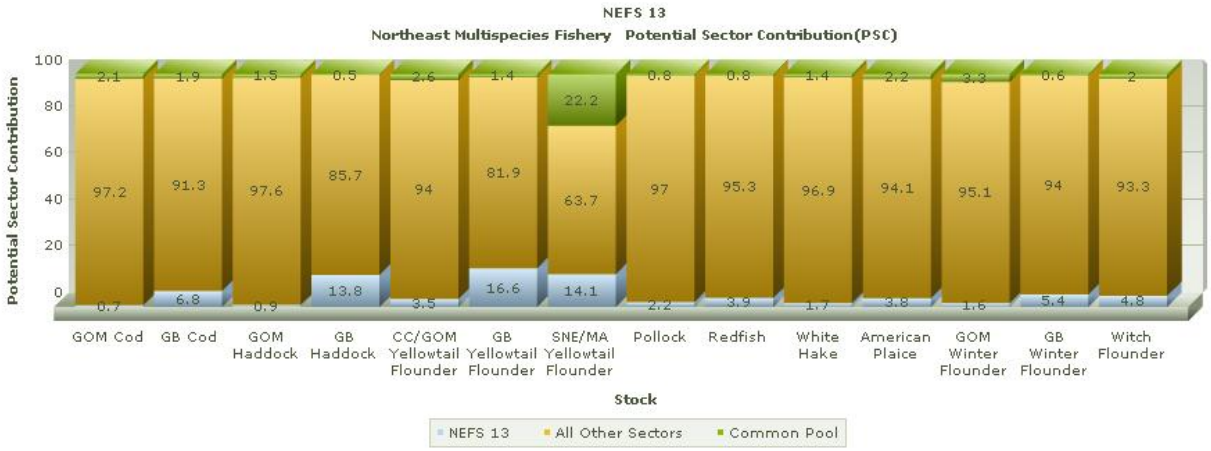
95.5 98.1 97.6 99.5 96.9 98.6 77.8 96.3 98.1 96.1 97.1 96.4 99.3 97.4
2.4 0 0.9 0 0.5 0 0 3 1.1 2.5 0.7 0.3 0 0.6
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
NEFS 12
All Other Sectors
Common Pool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Potential Sector Contribution
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97.2 91.3 97.6 85.7 94 81.9 63.7 97 95.3 96.9 94.1 95.1 94 93.3
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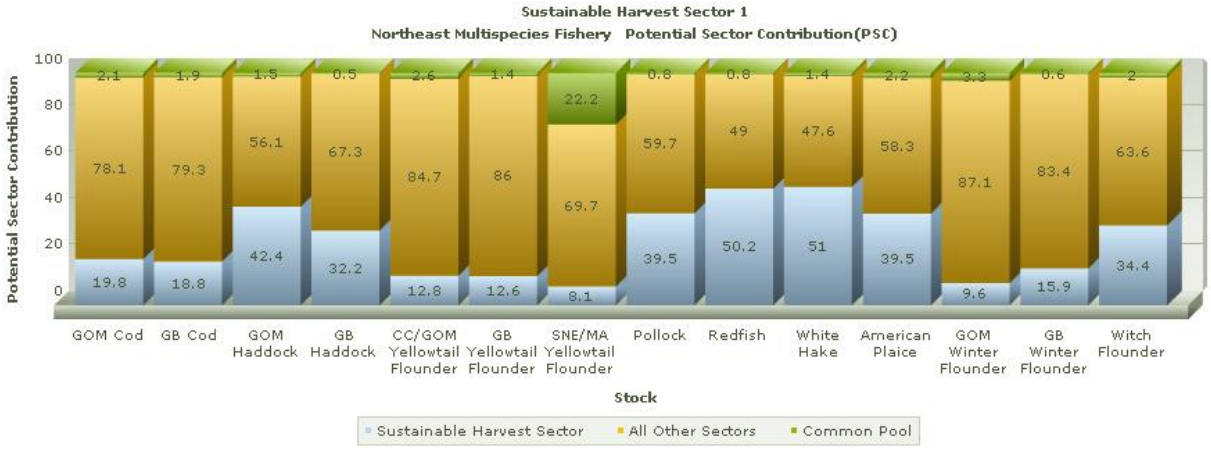
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
NEFS 13
All Other Sectors
Common Pool

Port Clyde Community Groundfish Sector
Northeast Multispecies Fishery Potential Sector Contribution(PSC)
Potential Sector Contribution
100
80
60
40
20
0
2.1 1.9 1.5 0.5 2.6 1.4 22.2 0.8 0.8 1.4 2.2 3.3 0.6 2
93.4 98 96 99.5 96.5 98.6 77.2 95.5 96.7 94.4 90.4 95.3 99.3 93.1
4.5 0.1 2.5 0 0.9 0 0.7 3.7 2.5 4.3 7.4 1.4 0 5
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
Port Clyde Community Groundfish Sector
All Other Sectors
Common Pool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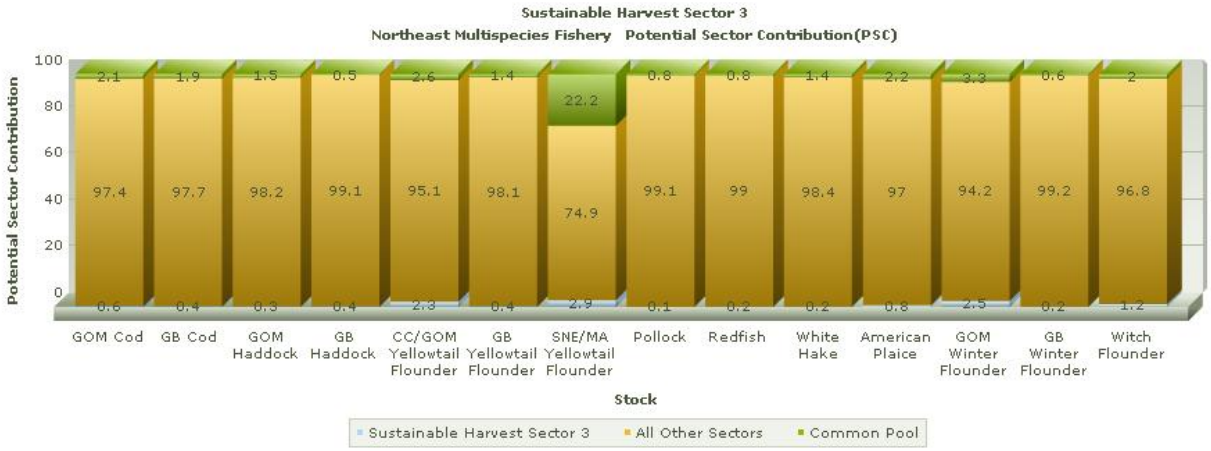
19.8 18.8 42.4 32.2 12.8 12.6 8.1 39.5 50.2 51 39.5 9.6 15.9 34.4
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
Sustainable Harvest Sector
All Other Sectors
Common Pool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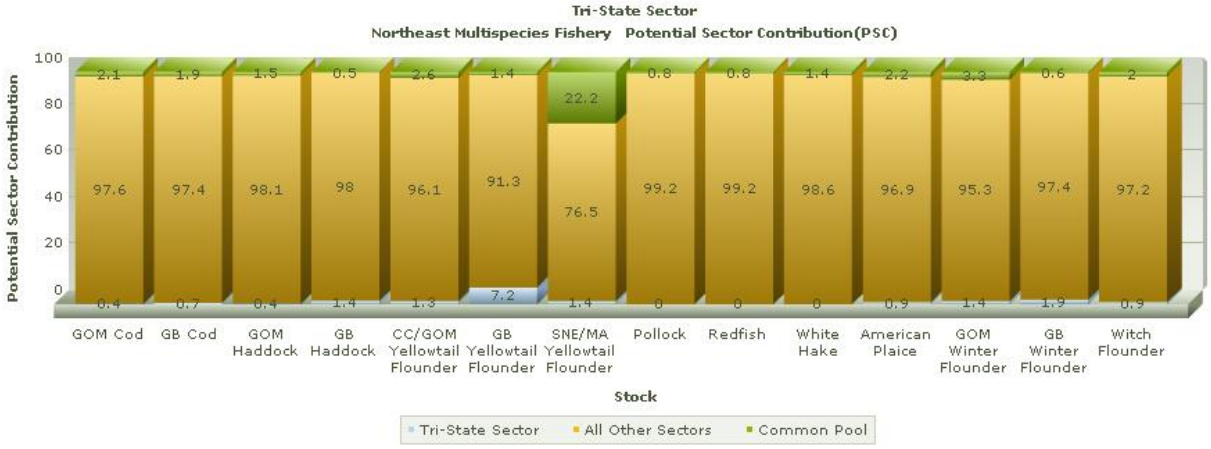
97.4 97.7 98.2 99.1 95.1 98.1 74.9 99.1 99 98.4 97 94.2 99.2 96.8
0.6 0.4 0.3 0.4 2.3 0.4 2.9 0.1 0.2 0.2 0.8 2.5 0.2 1.2
GOM Cod
GB Cod
GOM Haddock
GB Haddock
CC/GOM Yellowtail Flounder
GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
Sustainable Harvest Sector 3
All Other Sectors
Common Pool


Tri-State Sector
Northeast Multispecies Fishery Potential Sector Contribution(PSC)
Potential Sector Contribution
100
80
60
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20
0
2.1 1.9 1.5 0.5 2.6 1.4 22.2 0.8 0.8 1.4 2.2 3.3 0.6 2
97.6 97.4 98.1 98 96.1 91.3 76.5 99.2 99.2 98.6 96.9 95.3 97.4 97.2
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GOM Haddock
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GB Yellowtail Flounder
SNE/MA Yellowtail Flounder
Pollock
Redfish
White Hake
American Plaice
GOM Winter Flounder
GB Winter Flounder
Witch Flounder
Stock
Tri-State Sector
All Other Sectors
Common Pool

APPENDIX B: OVERVIEW OF THE PRIMARY PORTS FOR FY 2013 SECTORS

Appendix B contains a description of each of the primary ports in which sectors identified in their FY 2013 operations plans. The ports are listed in alphabetical order. The primary port descriptions are largely based on information provided in the Community Profiles for Northeast US Fisheries, by NEFSC (2009). Please refer to the source documents for a list of references as all of the in-text citations in this section are implied to be 'as cited in' NEFSC (2009).

1. Boothbay Harbor, Maine

The city of Boothbay Harbor, Maine (43.50°N, 69.38°W) is located in Lincoln County. Boothbay Harbor covers an area of 5.7 square miles (14.8 square km) of land area (State of Maine 2004b).

History

The Boothbay Regional Historical Society reports that, in the early 1600's, local fishermen supplied Pilgrim settlements, which exported "salt fish, timber and furs, until the Indian Wars wiped them out." Settlements of Scottish-Irish families followed in the early 1700's relying on trade and lumber. Boothbay was incorporated as a town in 1764. After the Revolutionary War and War of 1812, Boothbay vessels fished on the offshore banks for cod and inshore for mackerel. Shipbuilding, farming, ice-cutting, and brick-making flourished.

By 1881, Boothbay Harbor supported the fisheries community including an ice company, two marine railways, and a factory for canning lobsters (Varney 1886a). Fresh fish and lobsters were sent by steamer and rail to the Boston market. By the World Wars, Boothbay shipyards built military vessels including minesweepers (Boothbay Region Historical Society 2007). The boatyards now specialize in yachts, fishing vessels, ferries, and tugs (Boothbay Region Historical Society 2007).

Commercial Fishing

Boothbay Harbor has several seafood retailers and wholesalers such as Atlantic Edge Lobster, Boothbay Region Fish Market, Boothbay Lobster Wharf, and Bristol Lobster Sales (Boothbay Harbor Region Chamber of Commerce 2007). Lobsters are sold year-round, to as far as Boston and New York. Fresh Maine shrimp is sold in the winter (Maine Dept of Agriculture 2003).

Like many other coastal towns in Maine, lobster is the highest value species in Boothbay Harbor (Table 1-1). Other significant fisheries are small compared to lobster, but include "Other," large-mesh groundfish, and monkfish. The value of fishing for homeported vessels has fluctuated between the years 2001 to 2006, while the number of vessels whose owner's city was Boothbay Harbor stayed relatively consistent (Table 1-2).

Table 1-1 Dollar Value of Federally Managed Groups Landed in Boothbay Harbor	
Federal Group	**Rank Value of Average Landings from 1997-2006[d]**
Lobster	1
Other[a]	2
Large-mesh Groundfish[b]	3
Monkfish	4
Scallop	5
Herring	6
Skate	7
Dogfish	8
Small-mesh Groundfish[c]	9
Summer Flounder, Scup, Black Sea Bass	10

Notes:

[a] "Other" species includes any species not accounted for in a federally managed group.

[b] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] Only rank value is provided because value information is confidential in ports with fewer than three vessels or fewer than three dealers, or where one dealer predominates in a particular species and would therefore be identifiable.

Table 1-2 Commercial Fishing Trends in Boothbay Harbor		
Year	**Number of vessels with Boothbay Harbor**	**Number of vessels whose owner receives mail in Boothbay Harbor**
1997	40	24
1998	35	24
1999	37	22
2000	36	24
2001	41	29
2002	40	29
2003	41	25
2004	37	23
2005	40	26
2006	43	26

2. Boston, Massachusetts

The City of Boston (42.35º N, 71.06º W) is the capital of Massachusetts, and is located in Suffolk County. Boston Harbor opens out onto Massachusetts Bay (USGS 2008). The city covers a total of 89.6 square miles (232.1 square km), of which only 48.4 square miles (125.4 square km) (54 percent) is land.

History

The City of Boston has been an important port since its founding in 1630. Early on, it was the leading commercial center in the colonies (Banner 2005) and its economy was based on fishing, shipbuilding, and trade in and out of Boston Harbor. After the Revolutionary War, Boston became one of the wealthiest international ports in the world, exporting products such as rum, tobacco, fish, and salt (Lovestead 1997). Once an important manufacturing center, with many factories and mills based along Boston's numerous rivers and in the surrounding communities, many of the manufacturing jobs began to disappear around the early 1900's, as factories moved to the South. These industries were quickly replaced, however, by banking, financing, retail, and healthcare, and Boston later became a leader in high-tech industries (Banner 2005). The city remains the largest in New England and an important hub for shipping and commerce, as well as being an intellectual and educational hub. The Boston Fish Pier, located on the South Boston waterfront, has been housing fishermen for almost a century, and is the oldest continuously operating fish pier in the U.S. (BHA No Date) and home to the nation's oldest daily fish auction.

Commercial Fishing

More than 11,500 tons of fish are processed at the Fish Pier each year, of which 4,000 tons come from the 12 to 15 fishing vessels that dock there (BHA 2004). The landings show that large-mesh groundfish were the most valuable fishery in Boston, followed by monkfish and lobster (Table 2-1). While the value of landings in the multispecies fishery was less in 2006 than the 1997-2006 average, the value of both lobster and monkfish to Boston fishermen increased.

There are far more vessels with their homeport in Boston than there are vessel owners in Boston, indicating that most fishermen who docked in Boston Harbor live elsewhere (Table 2-2). The landings values for both homeport and landed port varied over the period from 1997 to 2006, with no significant pattern. The landed port value exceeded the homeport value in every year, meaning some fishermen come from elsewhere to land their catch there.

Table 2-1 Dollar Value of Federally Managed Groups Landed in Boston	
Federal Group	**Rank Value of Average Landings from 1997-2006[d]**
Large-mesh Groundfish[a]	1
Monkfish	2
Lobster	3
Other[b]	4
Squid, Mackerel, Butterfish	5
Skate	6
Scallop	7
Herring	8
Summer Flounder, Scup, Black Sea Bass	9
Small-mesh Groundfish[c]	10
Bluefish	11
Dogfish	12
Tilefish	13

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] Only rank value is provided because value information is confidential in ports with fewer than three vessels or fewer than three dealers, or where one dealer predominates in a particular species and would therefore be identifiable.

Table 2-2 Commercial Fishing Trends in Boston		
Year	**Number of vessels with Boston homeport**	**Number of vessels whose owner receives mail in Boston**
1997	66	16
1998	49	10
1999	45	8
2000	37	10
2001	42	9
2002	45	9
2003	42	9
2004	43	9
2005	46	8
2006	46	7

3. Chatham, Massachusetts

Chatham, Massachusetts is located at the southeastern tip of Cape Cod in Barnstable County, approximately 89 miles (143 km) from Boston. To the east is the Atlantic Ocean, to the south is

Nantucket Sound, and to the north is Pleasant Bay. The only adjacent town (located at both the north and west town line boundaries) is Harwich. Major geographical features of the town are hills, wooded uplands, extensive barrier beaches and spits, harbors, numerous small estuaries, and salt and freshwater ponds (Town of Chatham No Date).

History

Chatham was an English settlement in the mid 1600's. The population began to stabilize with the fishing trade, ship building, fishing, and salt making in the mid-18th century. With the building of the railroad in 1887, Chatham quickly became a summer resort destination for wealthy people. By 1950, the summer season population was more than double the year-round population. Chatham now receives up to 25,000 visitors each summer (Town of Chatham No Date). Although the cost of living is increasing in Chatham from the dominant tourism industry, there is still a fishing community using a range of harvest techniques from the more traditional hook and line and weir fishing to the more modern trawling, gillnetting, scalloping, etc., as well as other important shellfisheries. While the fishing industry exists and is determined to survive through the difficult period of stock depletion and strict fishery regulations, many changes both in and out of the town are putting pressure on the industry.

Commercial Fishing

Federal landed value data reveals that large-mesh groundfish were the highest value catch between the years 1997 and 2006. There are a variety of landed groups in Chatham, with large-mesh groundfish, "Other," and lobster yielding the highest values (Table 3-1). The number of vessels whose homeport was Chatham stayed relatively consistent over the 1997-2006 period, with a small spike in 2002 and a significant decline in 2006. Likewise, the level of fishing homeport value stayed consistent during the same time. The number of vessels whose owner's city was Chatham fluctuated between 61 and 94 vessels, showing the same decline in 2006 (Table 3-2).

Table 3-1 Dollar Value of Federally Managed Groups Landed in Chatham	
Federal Group	**Rank Value of Average Landings from 1997-2006[d]**
Large-mesh Groundfish[a]	1
Other[b]	2
Lobster	3
Scallop	4
Monkfish	5
Dogfish	6
Skate	7
Squid, Mackerel, Butterfish	8
Summer Flounder, Scup, Black Sea Bass	9
Bluefish	10
Small-mesh Groundfish[c]	11
Surf Clams, Ocean Quahog	12
Tilefish	13
Herring	14

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] Only rank value is provided because value information is confidential in ports with fewer than three vessels or fewer than three dealers, or where one dealer predominates in a particular species and would therefore be identifiable.

Table 3-2 Commercial Fishing Trends in Chatham		
Year	**Number of vessels with Chatham homeport**	**Number of vessels whose owner receives mail in Chatham**
1997	146	87
1998	131	75
1999	130	77
2000	131	79
2001	135	81
2002	162	94
2003	161	94
2004	145	82
2005	136	72
2006	117	61

4. Gloucester, Massachusetts

The city of Gloucester (42.62°N, 70.66°W) is located on Cape Ann, along the northern coast of Massachusetts in Essex County. It is 30 miles (48 km) northeast of Boston and 16 miles (26 km) northeast of Salem. The area encompasses 41.5 square miles (107 square km) of territory, of which 26 square miles (67 square km) is land (USGS 2008).

History

The history of Gloucester has revolved around the fishing and seafood industries since its settlement in 1623. By the mid 1800's, Gloucester was regarded by many to be the largest fishing port in the world. The construction of memorial statues and an annual memorial to fishermen demonstrates that the historic death tolls in commercial fisheries are still in the memory of the town's residents. The town is well-known as the home of Gorton's frozen fish packaging company, the nation's largest frozen seafood company. Enactment of the Magnuson-Stevens Act prevented foreign vessels from fishing within the waters of the U.S. EEZ, and Gloucester's fishing fleet soon increased along with other communities -- only to decline with the onset of major declines in fish stocks and subsequent strict catch regulations. For more detailed information regarding Gloucester's history, see Hall-Arber et al. (2001).

Commercial Fishing

Although there are threats to the future of Gloucester's fishery, the fishing industry remains strong in terms of recently reported landings. Gloucester's commercial fishing industry had the 13th highest landings in the U.S. and the nation's ninth highest landing value in 2002 Gloucester's federally managed group with the highest landed value was large-mesh groundfish worth nearly $20 million in 2006 (Table 4-1). Lobster landings were second in value, bringing in more than $10 million in 2006, a significant increase from the 1997-2006 average value of just over $7 million. Monkfish and herring were also valuable species; both had more valuable landings in 2006 than the 10-year average value. The number of vessels homeported in Gloucester increased slightly from 1997 to 2006 (Table 4-2).

Table 4-1 Dollar Value of Federally Managed Groups Landed in Gloucester		
Federal Group	**Average from 1997-2006[d]**	**2006 only[d]**
Large-mesh Groundfish[a]	$17,068,934	$19,577,975
Lobster	$7,036,231	$10,179,221
Monkfish	$3,556,840	$4,343,644
Other[b]	$3,246,920	$1,906,551
Herring	$3,127,523	$5,623,383
Squid, Mackerel, Butterfish	$1,065,567	$3,692,506
Scallop	$735,708	$1,113,749
Small-mesh Groundfish[c]	$732,353	$254,287
Dogfish	$375,972	$316,913
Skate	$63,488	$27,334
Tilefish	$52,502	$245,398
Surf Clams, Ocean Quahog	$29,033	$77,805
Bluefish	$21,672	$18,116
Summer Flounder, Scup, Black Sea Bass	$1,286	$603

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] All values are reported in nominal U.S. dollars.

Table 4-2 Commercial Fishing Trends in Gloucester				
Year	**Number of vessels with Gloucester homeport**	**Number of vessels whose owner receives mail in Gloucester**	**Value of landings among vessels homeported in Gloucester[a]**	**Value of fisheries landed in Gloucester[a]**
1997	277	216	$15,483,771	$23,497,650
1998	250	196	$18,078,326	$28,394,802
1999	261	199	$18,396,479	$25,584,082
2000	261	202	$19,680,155	$41,929,807
2001	295	230	$18,614,181	$37,961,334
2002	319	247	$21,316,029	$37,795,464
2003	301	225	$22,451,526	$37,795,464
2004	298	227	$24,531,345	$42,760,975
2005	287	217	$34,319,544	$45,966,974
2006	284	213	$34,255,146	$47,377,485

Note:

[a] All values are reported in nominal U.S. dollars.

5. Harpswell (Cundy's Harbor), Maine

The Village of Cundy's Harbor (44.40º N, 69.89º W) is located on Casco Bay within the town of Harpswell, in Cumberland County, Maine. The town of Harpswell is made up of a 10-mile-long (16 km) peninsula extending into Casco Bay. It also includes three large islands, Bailey Island, Orr Island, and Great (Sebascodegan) Island, and over 200 small islands, creating over 216 miles (348 km) of coastline for the town (TPL 2007). Cundy's Harbor is located on the tip of Great Island (USGS 2008).

History

The town of Harpswell is geographically spread out, and is divided into five main villages: Cundy's Harbor, Harpswell, South Harpswell, Bailey Island, and Orr Island. Cundy's Harbor is the oldest lobstering community in Maine (TPL 2007). Harpswell was incorporated as a town in 1758, under what was then the Massachusetts Bay Colony. Many tall ships, sloops, and schooners were built there during the 1800's, and fishing has been an important economic activity for the town for centuries. Today the town is often considered to have three populations: commuters, who reside there but work in Portland Harbor, Bath, or Brunswick; retirees who have moved to Harpswell; and "working townsfolk," many of whom earn their income from fishing (Hall-Arber et al. 2001).

Commercial Fishing

There are multiple commercial wharves including Cundy's Harbor, Holbrook's, Hawkes, Mill's Ledge Seafood, Watson's, and Oakhurst Island. Overall, lobster dominates the landings in Cundy's Harbor, worth more than $2.5 million in 2006 (Table 5-1). Landings in the "Other" species grouping were also significant. The level of landings in Cundy's Harbor overall varied during this time period between about $1.5 million and over $3.4 million, with no discernible pattern (Table 5-2). The level of homeport fishing for Cundy's Harbor was consistently lower than the level of landings there overall, indicating that fishermen from other harbors land their catch there. The level of fishing for homeported values was also variable. The number of homeported vessels in Cundy's Harbor showed somewhat of a declining trend from 1997 to 2006, while the number of vessels with owners living in Cundy's Harbor declined sharply, from 11 in 1997 to three in 2006.

Table 5-1 Commercial Fishing Trends in Harpswell				
Year	Number of vessels with Harpswell homeport	Number of vessels whose owner receives mail in Harpswell	Value of landings among vessels homeported in Harpswell [a]	Value of fisheries landed in Harpswell [a]
1997	28	11	$2,053,625	$2,595,709
1998	21	7	$1,611,016	$1,577,290
1999	21	6	$1,343,196	$3,248,354
2000	17	3	$1,361,446	$3,329,120
2001	20	2	$1,371,412	$2,636,583
2002	25	2	$2,029,047	$1,797,178
2003	21	1	$1,849,415	$2,191,411
2004	19	2	$1,676,130	$3,230,312
2005	19	2	$2,573,070	$3,479,115
2006	20	3	$2,708,258	$3,206,997

Note:

[a] All values are reported in nominal U.S. dollars.

Table 5-2 Dollar Value of Federally Managed Groups Landed in Harpswell		
Federal Group	Average from 1997-2006[d]	2006 only[d]
Lobster	$2,088,171	$2,512,267
Other[a]	$500,190	$385,155
Large-mesh Groundfish[b]	$109,930	$285,239
Monkfish	$26,098	$17,655
Herring	$3,671	$0
7Dogfish	$667	$6,667
Scallop	$380	$0
Skate	$106	$0
Small-mesh Groundfish[c]	$12	$0
Squid, Mackerel, Butterfish	$1	Confidential

Notes:

[a] "Other" species includes any species not accounted for in a federally managed group.

[b] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] All values are reported in nominal U.S. dollars.

6. Harwich, Massachusetts

Harwichport (41.67°N, 70.08°W) is located in Barnstable County, 15 miles (24 km) east of Hyannis along Highway 28, in the Barnstable Town metro area. The town of Harwich is made up of seven villages at the edge of Cape Cod. These include the North, South, East and West Harwiches; Harwich Center; Harwichport; and Pleasant Lake (Cape Cod Connection 2007).

History

Harwich was settled around 1665 and was originally known as Satucket until it was incorporated as a town in 1694. The town was once a shipbuilding and whaling center. When the whaling industry collapsed due to the discovery of terrestrial sources of oil, the community shifted its emphasis to cod fishing. By 1802, 15 to 20 ships were shore fishing. Another four ships were cod fishing in Labrador and Newfoundland. By 1851, there were 48 ships employing 577 men and bringing in thousands of tons of cod and mackerel. By the latter part of the 19th century, the decline of the fishing industry in Harwich was due to increases in the size of ships that surpassed the ability of the shallow port to house them. As a result, residents turned to the development of cranberry bogs and resorts for summer tourism.

Cranberry farming continues to be the biggest industry in Harwich. The town's population triples during the summer season, with visitors arriving to enjoy local freshwater and saltwater beaches, fishing, bird watching, scuba diving, and sailing.

Commercial Fishing

There are approximately 735 boats either moored or docked in Harwichport harbors. Of these, 735 boats, approximately 35 to 40 are small commercial fishing vessels, and there is an estimated transient population of 68 vessels. Almost all are involved in single-day hook fishing trips, mostly for groundfish (such as cod and haddock). The bottom longline fishery has also provided quality fish to Cape Cod for hundreds of years.

The most valuable landings in Harwichport were from the "Other" species grouping, followed by groundfish. The landings of both of these groups was considerably less in 2006 than the average landed values for the period 1997 to 2006 (Table 6-1). The number of homeported vessels in Harwichport increased from 55 in 1998 to 65 in 2002, and then fell again to 48 in 2006 (Table 6-2). The number of vessels with city owners in Harwich showed a similar trend, but with fewer vessels, indicating that many vessels ported in Harwich have owners in other communities.

Table 6-1 Dollar Value of Federally Managed Groups Landed in Harwichport	
Federal Group	**Rank Value of Average Landings from 1997-2006[c]**
Other[a]	1
Large-mesh Groundfish[b]	2
Scallop	3
Lobster	4
Summer Flounder, Scup, Black Sea Bass	5
Squid, Mackerel, Butterfish	6
Bluefish	7
Dogfish	8
Monkfish	9
Skate	10

Notes:

[a] "Other" species includes any species not accounted for in a federally managed group

[b] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[c] Only rank value is provided because value information is confidential in ports with fewer than three vessels or fewer than three dealers, or where one dealer predominates in a particular species and would therefore be identifiable.

Table 6-2 Commercial Fishing Trends in Harwichport		
Year	**Number of vessels with Harwichport homeport**	**Number of vessels whose owner receives mail in Harwichport**
1997	57	30
1998	55	29
1999	56	33
2000	60	37
2001	64	40
2002	65	45
2003	58	37
2004	59	41
2005	55	38
2006	48	38

7. Kennebunkport (Biddeford Pool and Saco), Maine

Kennebunkport (43.34° N, 70.34° W) is located in York County, on the southern Maine Coast. It is located at the mouth of the Kennebunk River (Town of Kennebunkport 2008), and consists of a total area of 3.2 square miles (8 square km) (3.1 square miles of land [8 square km]; and 0.1 square mile [0.3 square km] of water (State of Maine 2004d). Biddeford Pool and Saco are both within 3 miles (5 km) of Kennebunkport.

History

Kennebunkport, part of the Kennebunks, began with a settlement at Cape Porpoise (Cape Porpus) in 1610. In 1653, Kennebunk was established under the control of the Massachusetts Bay Colony, but was a target of Native hostility. In 1719, the area of present-day Kennebunkport was re-colonized and named Arundel (Kennebunkport Historical Society 2006). Throughout the 17th and 18th centuries, the location was defined by its offshore fishing waters, lumber resources, shipbuilding, and as an entry port for foreign trade (Nonantum Resort 2006). In 1821, the town was established under its current name of Kennebunkport (Kennebunkport Historical Society 2006).

The shipbuilding era of the Kennebunks reached its peak in the 19th century. As shipbuilding declined towards the latter part of the century, the presently thriving tourism industry emerged.

Commercial Fishing

The most valuable landings in Kennebunkport in 2006 were lobster, followed by species in the "Other" category (Table 7-1). Overall, the values of landings in 2006 were lower than the 10-year averages for those species. The total landings in Kennebunkport have declined in recent years from a high of over $3.6 million in 1999 down to less than a million in 2005. The level of homeport fishing has remained relatively steady over this same period of time, with some variability but no clear trend. At the same time, the number of vessels listing Kennebunkport as their homeport declined. Likewise, the number of vessels with owners living in Kennebunkport declined. The data show that in most years, most vessels landing in Kennebunkport do not list it as their homeport, and there are more vessels with owners living there than there are vessels homeported there (Table 7-2).

Table 7-1 Dollar Value of Federally Managed Groups Landed in Kennebunkport		
Federal Group	**Average from 1997-2006[c]**	**2006 only[c]**
Lobster	$1,863,259	$1,634,288
Other[a]	$221,626	$35,049
Large-mesh Groundfish[b]	$26,071	$8,033
Scallop	$3,086	$0
Monkfish	$2,714	$558
Squid, Mackerel, Butterfish	$5	$0
Bluefish	$1	$0
Skate	$1	$0

Notes:

[a] "Other" species includes any species not accounted for in a federally managed group.

[b] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[c] All values are reported in nominal U.S. dollars.

Table 7-2 Commercial Fishing Trends in Kennebunkport				
Year	**Number of vessels with Kennebunkport homeport**	**Number of vessels whose owner receives mail in Kennebunkport**	**Value of landings among vessels homeported in Kennebunkport[a]**	**Value of fisheries landed in Kennebunkport[a]**
1997	28	37	$180,937	$2,730,250
1998	19	31	$149,629	$2,057,789
1999	22	32	$134,768	$3,669,728
2000	21	29	$130,919	$2,846,675
2001	24	29	$100,793	$2,121,483
2002	23	30	$86,685	$2,077,278
2003	21	29	$177,670	$1,814,800
2004	17	22	$151,385	$1,536,532
2005	18	20	$166,185	$635,167
2006	16	24	$194,325	$1,677,928

Note:

[a] All values are reported in nominal U.S. dollars.

8. Marshfield (Green Harbor/Brant Rock), Massachusetts

The town of Marshfield (42.09°N, 70.71°W) is located in the South Shore region of Plymouth County, Massachusetts, approximately 30 miles south of Boston. Marshfield is on Cape Cod Bay and is bordered by Scituate on the north and Duxbury on the south. Marshfield is 31.7 square miles (82 square km) in size, 28.5 square miles (74 square km) of which is land (State of Massachusetts 2007). Marshfield encompasses several villages including Green Harbor, Ocean Bluff-Brant Rock, Humarock, Rexhame, North Marshfield, and Marshfield Hills.

History

In 1640, Marshfield was founded by Edward Winslow, who traveled to Plymouth on the Mayflower. Marshfield and Plymouth were connected by a road that is now known as the Pilgrim Trail. A number of villages were settled around the town of Marshfield and these villages remain distinct entities to this day. Shipbuilding became an important industry early in the town's history because of the numerous waterways and access to timber (Marshfield Chamber of Commerce 2006). There were over 1,000 ships built in the North River between 1645 and 1871 (Marshfield Chamber of Commerce 2006). Several industries to support the shipbuilding industry also developed around Marshfield during this period (Marshfield Chamber of Commerce 2006). Currently Marshfield and other towns in this area are growing quickly because of their proximity to Boston. Marshfield is also a summer vacation destination. The population is estimated to increase from 25,500 year-round residents to about 40,000 during the summer months (State of Massachusetts 2007).

Commercial Fishing

Landings in Marshfield were not available at the port level until 2000. At almost $2.3 million, lobster was the most valuable species landed in Marshfield in 2006 (Table 8-1). According to the Massachusetts Division of Marine Fisheries, 52 commercial lobstermen were fishing out of Marshfield in 2006. Even though lobster landings were lower in 2006 than the average value of landings for 2000 to 2006, they were still far higher in value than any other species grouping in 2006. Marshfield is also a center for tuna landings. Vessel permit data are combined for Marshfield and its villages (Green Harbor, Ocean Bluff, and Brant Rock). In 2000, landings reported in Marshfield were valued at over $5 million; however, landings declined to roughly $2.6 million as of 2006 (Table 8-2). The landed value of fisheries associated with homeported vessels over the period where data are available (1997-2006) was variable and ranged from approximately $300,000 in 2000 to over $2.7 million in 2006. The value of landings in Marshfield was generally significantly higher than the value of landings associated with homeported vessels, indicating that vessels with homeports elsewhere offload their landings in Marshfield.

Table 8-1 Dollar Value of Federally Managed Groups Landed in Marshfield		
Federal Group	**Average from 1997-2006[d]**	**2006 only[d]**
Lobster	$3,030,764	$2,279,311
Large-mesh Groundfish[a]	$124,177	$152,884
Other[b]	$22,234	$13,087
Dogfish	$8,752	$61,246
Scallop	$8,723	$57,359
Skate	$1,333	$148
Surf Clams, Ocean Quahog	$874	$2,204
Monkfish	$728	$175
Summer Flounder, Scup, Black Sea Bass	$535	$513
Bluefish	$166	$73
Squid, Mackerel, Butterfish	$29	$0
Small-mesh Groundfish[c]	$2	$0

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] All values are reported in nominal U.S. dollars.

Table 8-2 Commercial Fishing Trends in Marshfield				
Year	**Number of vessels with Marshfield homeport**	**Number of vessels whose owner receives mail in Marshfield**	**Value of landings among vessels homeported in Marshfield [a]**	**Value of fisheries landed in Marshfield [a]**
1997	108	74	$754,098	Not Recorded
1998	96	65	$604,562	Not Recorded
1999	101	75	$885,144	Not Recorded
2000	107	77	$338,566	$5,304,282
2001	92	67	$558,856	$3,961,088
2002	92	72	$628,251	$2,678,377
2003	89	67	$643,456	$2,678,377
2004	84	66	$555,371	$2,661,445
2005	88	66	$1,987,389	$2,111,329
2006	81	61	$2,760,790	$2,567,000

Note:

[a] All values are reported in nominal U.S. dollars.

9. Menemsha, Oak Bluffs, and Vineyard Haven

The 87.5 square miles (227 square km) of land that compose Martha's Vineyard (41.40° N, 70.63° W) are connected to the mainland by ferry service out of Woods Hole and Buzzards Bay. Located South of Boston, the driving distance from Boston to the Woods Hole Ferry is 75 miles (121 km). Martha's Vineyard includes 4 harbors commonly used for commercial fishing: Menemsha, Oak Bluffs, Vineyard Haven, and Edgartown.

History

Europeans settled among the Native Americans living on Martha's Vineyard between the 1640's and the 1660's. In the late 1700's, the island of Martha's Vineyard and nearby Nantucket were leading whaling ports. However, as whaling ships grew larger and required deeper ports, much of the whaling activity moved to mainland ports. In the 1800's, the Vineyard played host to religious camp meetings in the area that has now become Oak Bluffs. Today the area is best known as a summer vacation destination of the Kennedy's and several U.S. presidents.

Commercial Fishing

Commercial fishing on the Vineyard is broken into two broad categories: those who pursue fish and shellfish in the inland ponds and those who fish offshore. A 1994 report by the Martha's Vineyard Commission speculated that there were likely fewer than 100 fishermen who fit into the second category. That same report identified conch and lobster as the two most important species landed by both biomass and value (Table 9-1). Several species of groundfish, notably cod and flounder, also represented a sizeable portion of landings.

Table 9-1
Dollar Value of fish and shellfish landed in Martha's Vineyard in 1992

Species/Federal group	Rank Value 1992
Conch	1
Lobster	2
Large-mesh Groundfish[a]	3
Swordfish	4
Scallop	5

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

10. Montauk, New York

Montauk (41.00°N, 71.57°W) is located in Suffolk County at the eastern tip of the South Fork of Long Island in New York. It is situated between the Atlantic Ocean to the south, and Block Island Sound to the north, about 20 miles (32 km) off the Connecticut coast. The total area of Montauk is about 20 square miles (52 square km), of which 2.3 square miles (6 square km) of it (11.5 percent) is water (USGS 2008).

History

Montauk was originally inhabited by the Montauket tribe, who granted early settlers permission to pasture livestock there, essentially the only function of this area until the late 1800's. The owner of the Long Island Railroad extended the rail line there in 1895, hoping to develop Montauk as the first port of landing on the East Coast, from which goods and passengers would be transported to New York via the rail. While his grandiose vision was not fulfilled, the rail provided the necessary infrastructure for the transportation of seafood, and Montauk soon became the principal commercial fishing port on the East End. In the early 1900's, the railroad also brought recreational fishermen to the area from the city by the car-load aboard the "Fishermen's Special", depositing them right at the dock where they could board sportfishing charter and party boats. Montauk developed into a tourist destination around that time, and much of the tourism has catered to the sportfishing industry since (Montauk Sportfishing No Date).

Commercial Fishing

According to NMFS Landings Data, the top three valued fisheries in 2003 were squid ($2.3 million), golden tilefish ($2.1 million), and silver hake ($2.1 million). Scallop landings have increased substantially with the 2006 values over $1.5 million, which was more than the 10-year average (Table 10-1). The number of vessels homeported in Montauk showed a slightly decreasing trend between 1997 and 2006, while the number of vessels whose owner's city was Montauk showed a slight increasing trend over the same time period. Both the level of fishing homeport and landed port also stayed fairly consistent, with a jump in 2005, but generally ranging from over $9 million to over $16 million for the 1997-2006 period (Table 10-2).

Table 10-1 Dollar Value of Federally Managed Groups Landed in Montauk		
Federal Group	**Average from 1997-2006[d]**	**2006 only[d]**
Squid, Mackerel, Butterfish	$3,146,620	$3,640,565
Tilefish	$2,366,489	$2,942,310
Small-mesh Groundfish[a]	$2,028,574	$1,198,711
Summer Flounder, Scup, Black Sea Bass	$1,964,880	$3,900,690
Other[b]	$1,652,214	$1,379,958
Large-mesh Groundfish[c]	$646,634	$426,272
Lobster	$585,627	$613,598
Monkfish	$373,486	$643,731
Scallop	$366,169	$1,869,196
Bluefish	$91,346	$123,277
Skate	$29,360	$40,981
Dogfish	$9,895	$1,323
Herring	$413	$874
Surf Clams, Ocean Quahog	$20	$150
Salmon	$9	$90
Red Crab	$5	Confidential

Notes:

[a] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[b] "Other" species includes any species not accounted for in a federally managed group.

[c] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[d] All values are reported in nominal U.S. dollars.

Table 10-2 Commercial Fishing Trends in Montauk				
Year	**Number of vessels with Montauk homeport**	**Number of vessels whose owner receives mail in Montauk**	**Value of landings among vessels homeported in Montauk[a]**	**Value of fisheries landed in Montauk[a]**
1997	165	89	$9,222,288	$13,556,572
1998	146	88	$9,652,978	$12,080,693
1999	158	98	$10,863,508	$12,124,707
2000	166	103	$10,286,306	$13,139,382
2001	160	103	$12,302,916	$13,231,619
2002	153	99	$11,981,882	$11,131,789
2003	152	104	$12,405,663	$11,033,366
2004	152	98	$11,243,881	$13,061,890
2005	144	96	$14,104,902	$16,475,642
2006	145	96	$13,517,890	$16,781,742

Note:

[a] All values are reported in nominal U.S. dollars.

11. New Bedford, Massachusetts

New Bedford is the fourth largest city in Massachusetts. It is situated on Buzzards Bay, located in the southeastern section of the state in Bristol County. The city is 54 miles (87 km) south of Boston (State of Massachusetts 2006), and has a total area of 24 square miles (62 square km), of which about 4 square miles (10 square km) (16.2 percent) is water (USGS 2008).

History

Settled in 1652, a New Bedford fishing community was established in 1760. The port focused largely on whaling until the discovery of petroleum decreased the demand for sperm oil in the mid- to late 1800's. At that time, New Bedford began to diversify its economy, by expanding the focus of the fishing fleet, and focusing on the manufacture of textiles until the southeast cotton boom in the 1920's.

Since then, New Bedford has continued to diversify, but the city is still a major commercial fishing port (USGenNet 2006) consistently ranked among the top two ports in the U.S. for landed value. One factor complicating further development of the New Bedford harbor area is its listing by U.S. Environmental Protection Agency as a superfund site due to the presence of metals, organic compounds, and PCBs.

Commercial Fishing

The number of commercial fishing vessels homeported in New Bedford increased from 244 in 1997 to 273 in 2006 as fishermen moved to New Bedford to take advantage of commercial fishing infrastructure. Concurrent with this increase in homeported vessels, the value of fishing for homeport vessels more than doubled from $80 million to $184 million from 1997 to 2006, and the value of New Bedford landings increased to $281 million primarily driven by increased landings of scallop (Table 11-1). However, over that same time the value of groundfish landings decreased approximately 20 percent (Table 11-2).

Table 11-1
Commercial Fishing Trends in New Bedford

Year	Number of vessels with New Bedford homeport	Number of vessels whose owner receives mail in New Bedford	Value of landings among vessels homeported in New Bedford[a]	Value of fisheries landed in New Bedford[a]
1997	244	162	$80,472,279	$103,723,261
1998	213	137	$74,686,581	$94,880,103
1999	204	140	$89,092,544	$129,880,525
2000	211	148	$101,633,975	$148,806,074
2001	226	153	$111,508,249	$151,382,187
2002	237	164	$120,426,514	$168,612,006
2003	245	181	$129,670,762	$176,200,566
2004	257	185	$159,815,443	$206,273,974
2005	271	195	$200,399,633	$282,510,202
2006	273	199	$184,415,796	$281,326,486

Note:
[a] All values are reported in nominal U.S. dollars.

Table 11-2 Dollar Value of Federally Managed Groups Landed in New Bedford		
Federal Group	**Average from 1997-2006[d]**	**2006 only[d]**
Scallop	$108,387,505	$216,937,686
Large-mesh Groundfish[a]	$30,921,996	$23,978,055
Monkfish	$10,202,039	$8,180,015
Surf Clams, Ocean Quahog	$7,990,366	$9,855,093
Lobster	$4,682,873	$5,872,100
Other[b]	$4,200,323	$2,270,579
Skate	$2,054,062	$3,554,808
Squid, Mackerel, Butterfish	$1,916,647	$5,084,463
Summer Flounder, Scup, Black Sea Bass	$1,481,161	$2,227,973
Small-mesh Groundfish[c]	$897,392	$1,302,488
Herring	$767,283	$2,037,784
Dogfish	$89,071	$13,607
Bluefish	$25,828	$10,751
Tilefish	$2,675	$1,084

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] All values are reported in nominal U.S. dollars.

12. Newburyport, Massachusetts

The city of Newburyport (42.81° N, 70.88° W) is a part of Essex County in Massachusetts. It sits on the southern shore of the Merrimack River, opposite the town of Salisbury and just south of the New Hampshire border. Newburyport has a total area of 10.6 square miles (27 square km), of which 8.4 square miles (22 square km) is land (State of Massachusetts 2007, USGS 2008).

History

Newburyport was originally settled by the Pawtucket Indians, and later by Europeans in the 1630's as the town of Newbury. The port became involved in fishing and trading, while the rest of Newbury was involved in agriculture. It was incorporated as a city in 1851. The Merrimack River was an important source of food and transportation for Native Americans and later for Europeans, and would play an important part in the Industrial Revolution. Newburyport was an important trading port, bringing in goods from all over the world and making many of its residents very wealthy. There was also an important shipbuilding industry there through the 1800's (Greater Newburyport Chamber of Commerce and Industry 2007).

Commercial Fishing

The large-mesh groundfish species grouping was the most valuable fishery in Newburyport for the 1997-2006 period, with an average landings value of over $300,000 (Table 12-1). The value of groundfish in 2006 was much less, under $100,000. Lobster is also highly valuable, and was the most valuable single species in 2006, worth $342,347. The value of lobster in 2003 was also higher than the average landed value for 1997 to 2006. The number of vessels homeported in Newburyport varied during the 1997 to 2006 period, from a low of 40 in 2006 to a high of 59 in 2002, with no discernible pattern (Table 12-2).

The number of vessels with owners living in Newburyport was similarly variable. Generally, the value of both homeport fishing and landed fishing increased over this time period; both reached a peak in 2003 and then declined in 2004 through 2006. The peak value of homeport fishing was just over $1 million, while the peak value of landings was just under $1 million.

Table 12-1
Dollar Value of Federally Managed Groups Landed in Newburyport

Federal Group	Average from 1997-2006[d]	2006 only[d]
Large-mesh Groundfish[a]	$329,133	$93,777
Lobster	$221,768	$342,347
Other[b]	$42,840	$32,004
Scallop	$40,511	$32,101
Monkfish	$23,968	$9,059
Small-mesh Groundfish[c]	$4,265	$14
Dogfish	$2,332	$4,612
Skate	$1,356	$0
Squid, Mackerel, Butterfish	$304	$0
Summer Flounder, Scup, Black Sea Bass	$138	$0
Bluefish	$36	$86
Herring	$4	$0

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] All values are reported in nominal U.S. dollars.

Table 12-2
Commercial Fishing Trends in Newburyport

Year	Number of vessels with Newburyport homeport	Number of vessels whose owner receives mail in Newburyport	Value of landings among vessels home-ported in Newburyport[a]	Value of fisheries landed in Newburyport [a]
1997	53	26	$454,041	$364,737
1998	48	25	$560,563	$521,260
1999	41	27	$263,454	$322,161
2000	45	27	$587,709	$880,425
2001	52	30	$621,682	$533,975
2002	59	28	$730,359	$927,838
2003	48	24	$1,019,782	$971,945
2004	47	25	$520,982	$753,817
2005	45	22	$503,463	$876,387
2006	40	20	$540,115	$514,000

Note:

[a] All values are reported in nominal U.S. dollars.

13. Newport, Rhode Island

Newport, Rhode Island (41.50°N, 71.30°W) (USGS 2008) is located at the southern end of Aquidneck Island in Newport County. The city is located 11.3 miles from Narragansett Pier, 59.7 miles (96 km) from Boston, Massachusetts, and 187 miles (301 km) from New York City.

History

In the mid 1700's, Newport was one of the five largest ports in colonial North America and, until Point Judith's docking facilities were developed, it was the center for fishing and shipping in Rhode Island. Between 1800 and 1930, the bay and inshore fleet dominated the fishing industry of Newport. Menhaden was the most important fishery in Newport and all of Rhode Island until the 1930's when the fishery collapsed, and the fishing industry shifted to groundfish trawling.

Commercial Fishing

Newport has a highly diverse fishery. Of the federally-managed landed species, scallop had the highest value in 2006, at over $13 million. The average value of scallop landings for 1997 to 2006 was just over $2.5 million; 2006 landings represent a more than five-fold increase over this average value. Lobster was the most valuable species on average, worth more than $2.7 million on average, and close to $3 million in 2006. The squid, mackerel, and butterfish grouping; large-mesh groundfish; and monkfish were all valuable fisheries in Newport (see Table 13-1). The value of landings for homeported vessels in Newport was relatively consistent from 1997 to 2006, with a high of just under $8 million in 2003 (see Table 13-2). The level of landings in Newport was steady from 1997 to 2004, and then saw enormous increases in 2005 and 2006, to almost $21 million in 2006. Homeported vessels in Newport declined from a high of 59 in 2000 to 48 in 2006, while the number of vessels with owners living in Newport increased from 13 in 1997 to 18 in 2006; this implies that most vessels homeported in Newport have owners residing in other communities.

Table 13-1 Dollar Value of Federally Managed Groups Landed in Newport		
Federal Group	**Average from 1997-2006[d]**	**2006 only[d]**
Lobster	$2,758,908	$2,971,680
Scallop	$2,528,448	$13,267,494
Squid, Mackerel, Butterfish	$1,425,947	$1,315,229
Large-mesh Groundfish[a]	$1,039,962	$445,273
Monkfish	$878,265	$1,068,547
Summer Flounder, Scup, Black Sea Bass	$739,880	$815,918
Other[b]	$334,103	$401,779
Small-mesh Groundfish[c]	$179,296	$43,165
Skate	$58,481	$224,184
Herring	$42,538	$267,164
Dogfish	$26,441	$6,037
Red Crab	$15,560	$0
Bluefish	$11,759	$9,878

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] All values are reported in nominal U.S. dollars.

Table 13-2 Commercial Fishing Trends in Newport				
Year	**Number of vessels with Provincetown homeport**	**Number of vessels whose owner receives mail in Provincetown**	**Value of landings among vessels home-ported in Newport[a]**	**Value of fisheries landed in Newport[a]**
1997	52	13	$5,130,647	$7,598,103
1998	52	16	$6,123,619	$8,196,648
1999	52	14	$6,313,350	$8,740,253
2000	59	14	$6,351,986	$8,296,017
2001	52	15	$5,813,509	$7,485,584
2002	55	17	$6,683,412	$7,567,366
2003	52	16	$7,859,848	$9,082,560
2004	52	15	$5,951,228	$8,402,556
2005	54	17	$6,012,472	$14,281,505
2006	48	18	$6,811,060	$20,837,561

Note:

[a] All values are reported in nominal U.S. dollars.

14. Plymouth, Massachusetts

The Town of Plymouth (41.96º N, 70.67º W) is located in Southeastern Massachusetts, and is the seat of Plymouth County. Plymouth faces Cape Cod Bay, and just borders Cape Cod.

History

Plymouth played a very important role in American history as one of the first colonies, a fact not soon forgotten by the town or any of the one million tourists who visit here annually (Plymouth Area Chamber of Commerce 2007). The pilgrims were English separatists, leaving the Church of England and their homeland in search of religious freedom, believing the Church of England had not fulfilled the Reformation. They initially traveled to Holland, but then decided to journey to America. Originally headed for Northern Virginia, the Pilgrims were blown off course and found themselves off Provincetown. They eventually settled at Plymouth, creating the first European settlement in New England, drawing up the Mayflower Compact which established a new government. Plymouth was founded on December 21, 1620, later to become Plymouth Colony and eventually a part of the Massachusetts Bay Colony (Historical Reference Center 1997). Long before the Pilgrims ever arrived, the Wampanoag living in the Plymouth area were highly dependent on fishing (Hall-Arber 2001). Today, Plymouth is a fishing and tourist center, with marine-related industries and cranberry-packing houses (Historical Reference Center 1997). Plymouth's beautiful scenery and its proximity to Boston have encouraged many people to move here and the town has seen a rapid increase in growth, with the population increasing by 145% in the last two decades (Plymouth Area Chamber of Commerce 2007).

Commercial Fishing

Commercial fishing vessels are generally docked at the Town Wharf, but both these and the lobster boats unload along the Town Dock. The unloading facilities are operated by Reliable
Seafood Co. on the town wharf, a wholesale seafood distributor which has been distributing most of the fish and lobsters caught by the fleet for the last 75 years (Fort Point Associates 2002). The Massachusetts Division of Marine Fisheries reported 70 commercial lobstermen fishing out of Plymouth in 2006. Plymouth was ranked 5th in the state in catch (pounds) for state landings. There are now only about a dozen commercial finfish boats left in Plymouth. Overall, lobster make up the vast majority of the landings in Plymouth, followed by large-mesh groundfish and monkfish (see Table 14-1). The number of vessels home ported in Plymouth was variable from 1997-2006, with a high of 69 in 2005, declining to 62 in 2006. The number of vessels with owners living in Plymouth (city owner vessels) was consistently lower than the number of home ported vessels, indicating that many vessels found in Plymouth Harbor are likely owned by people residing in other communities (see Table 14-2).

Table 14-1 Dollar Value of Federally Managed Groups Landed in Plymouth	
Federal Group	**Rank Value of Average Landings from 1997-2006[d]**
Lobster	1
Large-mesh Groundfish[a]	2
Monkfish	3
Dogfish	4
Other[b]	5
Surfclams/Ocean Quahog	6
Scallop	7
Skate	8
Summer Flounder, Scup, Black Sea Bass	9
Squid, Mackerel, Butterfish	10
Small-mesh Groundfish[c]	11
Bluefish	12
Tilefish	13

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] Only rank value is provided because value information is confidential in ports with fewer than three vessels or fewer than three dealers, or where one dealer predominates in a particular species and would therefore be identifiable.

Table 14-2 Commercial Fishing Trends in Plymouth		
Year	**Number of vessels with Plymouth home-port**	**Number of vessels whose owner receives mail in Plymouth**
1997	58	46
1998	53	42
1999	54	40
2000	50	39
2001	56	48
2002	56	44
2003	59	45
2004	68	53
2005	69	49
2006	62	47

15. Point Judith/Narragansett, Rhode Island

Narragansett (41.45°N, 71.45°W) (USGS 2008) is located in Washington County, 30 miles (48 km) south of Providence. Point Judith is located in the southern end of Narragansett along Highway 108 near Galilee State Beach, at the western side of the mouth of Rhode Island Sound. Point Judith itself is not a census designated place or incorporated town, and as such has no census data associated with it. Thus, this profile provides census data from Narragansett Town (town-wide) and other data from both Point Judith itself and Narragansett.

History

The land now called Narragansett was originally inhabited by the Narragansett Indians until Roland Robinson purchased it in 1675. By the 1660's, settlers put the fertile soil to use by developing agriculture in the area. Soon the area's economy depended on the export of agricultural products to markets such as Boston, Providence, and Newport. By the 1700's, there was a thriving ship building industry and a busy port. Fishing did not come into prominence again until the 1930's (Griffith and Dyer 1996).

By the 1800's, many farmers began to supplement their income by fishing for bass and alewife, or harvesting oysters. By the early 1900's, Point Judith's Port of Galilee became one of the largest fishing ports on the east coast. By the 1930's, wharves were constructed to facilitate large ocean-going fishing vessels (Eckilson 2007). Today, Point Judith is not only an active commercial fishing port, but it supports a thriving tourism industry that includes restaurants, shops, whale watching, recreational fishing, and a ferry to Block Island.

Commercial Fishing

Over the 10-year period from 1997 to 2006, the value of landings in Point Judith varied but indicated a declining trend, from a high of just over $51 million to a low of $31 million in 2002 to 2003. However, in 2004 the landings value began to increase again, back to just under $47 million in 2006. The landings value for the squid, mackerel, and butterfish species grouping was higher in 2006 than the average value for 1997 to 2006 (see Table 15-1). The value of lobster in 2006, second most valuable in terms of landings, was lower in 2006 than the average value. Vessel data is combined there for Point Judith and Narragansett; there are no vessel owners listed for Point Judith (because the name refers only to the port), indicating that many fishermen live in the Narragansett area and fish out of Point Judith (Table 15-2). In total, the number of vessels homeported in either Point Judith or Narragansett reached a high of 186 in 2001, and a low of 168 in 2006. The number of vessels with owners living in Narragansett was much lower in all years than the number of vessels homeported there, indicating that many of the vessels in Point Judith have owners residing in other communities.

Table 15-1 Dollar Value of Federally Managed Groups Landed in Point Judith/Narragansett		
Federal Group	**Average from 1997-2006[d]**	**2006 only[d]**
Squid, Mackerel, Butterfish	$11,298,781	$13,188,211
Lobster	$11,022,301	$8,675,086
Summer Flounder, Scup, Black Sea Bass	$4,718,136	$6,495,568
Small-mesh Groundfish[a]	$2,816,677	$1,799,479
Monkfish	$2,687,563	$2,110,227
Large-mesh Groundfish[b]	$2,451,647	$3,383,452
Other[c]	$2,056,576	$2,697,425
Scallop	$1,457,702	$7,420,396
Skate	$618,033	$604,990
Herring	$470,065	$376,506
Tilefish	$230,142	$32,985
Bluefish	$112,378	$118,466
Dogfish	$48,031	$45,000
Red Crab	$9,593	$0

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] All values are reported in nominal U.S. dollars.

Table 15-2 Commercial Fishing Trends in Point Judith/Narragansett				
Year	**Number of vessels with Point Judith/Narragansett homeport**	**Number of vessels whose owner receives mail in Point Judith/Narragansett**	**Value of landings among vessels home-ported in Point Judith/Narragansett**	**Value of fisheries landed in Point Judith/Narragansett**
1997	181	61	$33,021,800	$47,529,746
1998	175	55	$32,870,223	$42,614,251
1999	181	60	$36,324,182	$51,144,479
2000	184	61	$33,911,658	$41,399,853
2001	186	62	$30,121,535	$33,550,542
2002	179	53	$30,014,709	$31,341,472
2003	173	52	$32,793,425	$31,171,867
2004	174	51	$37,058,022	$36,016,307
2005	171	52	$37,150,241	$38,259,922
2006	168	51	$41,021,147	$46,947,791

Note:

[a] All values are reported in nominal U.S. dollars.

16. Port Clyde, Maine

The village of Port Clyde, Maine (43.92°N, 69.25°W) is located in Knox County, in the town of St. George. Port Clyde is a small fishing village located at the end of St. George Peninsula, which is a point of land between the towns of Thomaston and Rockland (St. George, Maine No Date).

History

The first permanent European settlers in St. George, of which Port Clyde is a component, arrived in the 1760's and 1770's, from neighboring Cushing. In 1789, St. George and Cushing were incorporated together as the Town of Cushing, but were divided again in 1803 along the river. The original industries in the towns included timber and small-scale farming. Later granite quarries and shipyards employing hundreds of men developed. However, the "fishing industry has always been a mainstay for the people of St. George, and the industry is still going strong and provides jobs for local residents" (Watts No Date). Summer tourism began almost 100 years ago and today over half of the town is owned by non-residents. Port Clyde has several seasonal restaurants, a general store, and numerous galleries. In addition, the ferry for Monhegan Island leaves from Port Clyde.

Commercial Fishing

Lobster was by far the most significant fishery in Port Clyde for the 1997-2006 period. Large-mesh groundfish had the second highest landed value averaged for the 10-year period; however, herring landings in 2006 far exceeded those of groundfish (Table 156-1). The level of landings in Port Clyde increased considerably between 1997 and 2003, with the 2003 landing values almost three times the 1997 landing values, and then declining subsequently. At the same time, the level of homeport fishing remained relatively static during the same period, as did the number of homeported vessels (Table 16-2). This suggests that this increase in landings is a result of vessels from other communities landing their catch in Port Clyde.

Table 16-1 Dollar Value of Federally Managed Groups Landed in Port Clyde	
Federal Group	**Rank Value of Average Landings from 1997-2006[d]**
Lobster	1
Large-mesh Groundfish[a]	2
Monkfish	3
Other[b]	4
Herring	5
Scallop	6
Skate	7
Summer Flounder, Scup, Black Sea Bass	8
Squid, Mackerel, Butterfish	9
Small-mesh Groundfish[c]	10
Dogfish	11

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] Only rank value is provided because value information is confidential in ports with fewer than three vessels or fewer than three dealers, or where one dealer predominates in a particular species and would therefore be identifiable.

Table 16-2 Commercial Fishing Trends in Port Clyde		
Year	**Number of vessels with Port Clyde home-port**	**Number of vessels whose owner receives mail in Port Clyde**
1997	23	16
1998	25	15
1999	26	16
2000	29	16
2001	31	19
2002	27	17
2003	29	18
2004	31	20
2005	30	20
2006	25	17

17. Portland Harbor, Maine

The city of Portland, Maine (43.66 °N, 70.2 °W) has a terrestrial area of 54.9 square miles (142 square km), and 31.4 square miles (81 square km) of water. It is located in Cumberland County on Casco Bay, and is adjacent to South Portland, Westbrook, and Falmouth. Portsmouth and Manchester, New Hampshire are the closest large cities. Portland is the largest city in Maine and has the highest population in New England north of Boston.

History

Portland was destroyed four times by various sources including Native American attacks, the British Navy during the American Revolution, and a fire. Each time it was rebuilt and now it is well-known for its preservation of Victorian-style architecture.

The city's port industries have driven its economy since its settlement. From the mid-1800's until World War I, Portland provided the only port for Montreal, Canada. Railroads from the south to the north fed through the city, facilitating trade and travel. Although Canada developed its own ports, and other cities in southern New England states built larger ports, the city remained tied to its maritime roots by depending on the fishing industry. More recently, it has become a popular cruise ship destination and functions as the second largest oil port on the east coast of the U.S.

Commercial Fishing

Portland's landings come primarily from the large-mesh groundfish species and from lobster, with over $14 million and $12 million in value respectively over the 10-year average (Table 17-1). Monkfish and herring are also important species. There were also a variety of species landed in Portland between the years 1997 to 2006. Both the number of vessels homeported and number of vessels registered with owner's living in Portland slightly decreased between 1997 and 2006. The level of fishing homeport value increased until 2006, where there was a drop from over $18 million in the previous year to over $13 million. The level of landings experienced a similar trend, with a dip from 2005 to 2006 of over $6 million (Table 17-2).

Table 17-1 Dollar Value of Federally Managed Groups Landed in Portland Harbor		
Federal Group	**Average from 1997-2006[d]**	**2006 only[d]**
Large-mesh Groundfish[a]	$14,433,950	$10,756,311
Lobster	$12,616,286	$8,737,373
Monkfish	$4,908,022	$3,094,679
Herring	$2,524,047	$4,423,437
Other[b]	$2,007,356	$684,362
Scallop	$65,950	$72,250
Small-mesh Groundfish[c]	$44,811	$168
Skate	$44,582	$933
Squid, Mackerel, Butterfish	$17,444	Confidential
Tilefish	$15,623	Confidential
Summer Flounder, Scup, Black Sea Bass	$12,334	Confidential
Dogfish	$12,023	$12,211
Bluefish	$151	$73

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group.

[c] Small-mesh multi-species: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] All values are reported in nominal U.S. dollars.

Table 17-2 Commercial Fishing Trends in Portland Harbor				
Year	**Number of vessels with Portland Harbor home-port**	**Number of vessels whose owner receives mail in Portland**	**Value of landings among vessels home-ported in Portland Harbor[a]**	**Value of fisheries landed in Portland Harbor[a]**
1997	123	49	$14,260,267	$43,219,804
1998	104	43	$11,898,155	$35,203,041
1999	116	47	$14,781,969	$42,393,247
2000	115	43	$16,486,230	$45,434,740
2001	109	39	$15,488,517	$34,356,660
2002	107	40	$15,208,020	$40,396,946
2003	114	40	$15,478,904	$28,892,963
2004	111	38	$17,763,527	$34,690,050
2005	111	43	$18,051,059	$34,613,266
2006	104	44	$13,255,702	$27,825,058

Note:

[a] All values are reported in nominal U.S. dollars.

18. Portsmouth, New Hampshire

Portsmouth (43.03° N, 70.47°W) (USGS 2008) is located in Rockingham County, New Hampshire. Portsmouth Harbor is located by the mouth of the Piscataqua River, which allows deep water access (State of New Hampshire 2006). Portsmouth is located along the State's seaboard that only totals about 18 miles.

History

The city of Portsmouth is the second oldest city in New Hampshire. It was originally settled in 1623 as Strawberry Banke and was incorporated as Portsmouth in 1631. Fishing, farming, shipbuilding, and coastal trade were the major industries throughout New Hampshire in the 1600's. By 1725, Portsmouth was a thriving commercial port, exporting timber products and importing a wide range of goods (Wallace 2006). However, the 1800's brought change to Portsmouth as the seacoast declined as a commercial center. Many nearby towns, like Dover, Newmarket, and Somersworth, turned to textile manufacturing (Wallace 2006). The Portsmouth Naval Shipyard, established in June 1800, is the oldest naval shipyard continuously operated by the U.S. Government (PNS No Date). In recent times, high-tech industries and an increase in tourism has transformed Portsmouth and all of southern New Hampshire, making New Hampshire into the fastest growing state in the Northeast (State of New Hampshire DHR 2006).

Commercial Fishing

Large-mesh groundfish and monkfish were the most valuable landings in Portsmouth between the years 1997 and 2006 (Table 18-1). Additionally, lobster, "Other" species, and sea scallops accounted for a large portion of the value of species landed in Portsmouth. The value of landings of most of these species groupings had declined in 2006 from the 1997-2006 average; however, lobster landings had increased considerably, and were the most valuable landings for Portsmouth in 2006.

The number of homeported vessels has varied between the years 1997 and 2006, but overall showed an increasing trend. In 1997, there were 54 vessels, which increased to a high of 67 vessels in 2004. The number of vessels where the owner's city is Portsmouth varies slightly over the years with no consistent trend (Table 18-2).

Table 18-1 Dollar Value of Federally Managed Groups Landed in Portsmouth	
Federal Group	**Rank Value of Average Landings from 1997-2006[d]**
Large-mesh Groundfish[a]	1
Monkfish	2
Lobster	3
Other[b]	4
Scallop	5
Dogfish	6
Herring	7
Small-mesh Groundfish[c]	8
Skate	9
Bluefish	10
Squid, Mackerel, Butterfish	11
Summer Flounder, Scup, Black Sea Bass	12
Tilefish	13

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] Only rank value is provided because value information is confidential in ports with fewer than three vessels or fewer than three dealers, or where one dealer predominates in a particular species and would therefore be identifiable.

Table 18-2 Commercial Fishing Trends in Portsmouth		
Year	**Number of vessels with Portsmouth homeport**	**Number of vessels whose owner receives mail in Portsmouth**
1997	54	26
1998	44	20
1999	45	18
2000	62	21
2001	63	22
2002	59	25
2003	54	21
2004	67	29
2005	64	20
2006	66	19

19. Rockport, Massachusetts

The town of Rockport (42.66°N, 70.62°W) is a part of Essex County and is located on Cape Ann in the state of Massachusetts. It is part of the Boston-Cambridge-Quincy metro area (State of Massachusetts 2007). The town has a total area of 17.6 square miles, 7.1 miles of which is land and 10.5 miles of which is water (MapQuest 2007). Rockport is located about 40 miles from Boston (State of Massachusetts 2007).

History

The Agawam Tribe originally inhabited Rockport. They had many villages located throughout Cape Ann. The first European settlement came about in 1623 at which time most of the Native Americans had been killed off by disease. Rockport itself was at the time an uninhabited part of Gloucester. For 100 years it remained uninhabited and was used mainly for harvesting trees for use in the shipbuilding industry. The area was also used for fishing and was known to be one of the best fishing grounds in all of New England. In 1743, a dock was built on Sandy Bay (Seecapeann.com nd). In the 1800s fishing was Rockport's most prominent industry. By 1836, Rockport had 12 vessels that traveled to New York, Boston and even the West Indies (Hall-Arber et al. 2001).

In 1840 Rockport became its own town and broke off from Gloucester, which was becoming increasingly urbanized. Rockport became a fishing town and also developed its famous granite industry as demand rose during the industrial revolution. The granite trade in Rockport was started by the Finnish in the early- to mid-1800s. After the invention of concrete during the Great Depression, the demand for granite decreased considerably. Rockport became known as a fishing and arts community.

Commercial Fishing

The second largest employer in Gloucester is Whole Foods Market, which operates a large fish processing facility in Pigeon Cove, and has roughly 35-37 employees (Hall-Arber 2001). Also on the list of largest employers at number 7 is the Pigeon Cove Fisherman's Co-op, which includes retail and wholesale facilities as well as docking and unloading for the fishermen who are part of the co-op (Hall-Arber et al. 2001).

The most valuable species landed in Rockport in 2006 was lobster. Lobster was also the most valuable species averaged for the years 1997-2006 (Table 19-1). Lobster landings in 2006 were worth over $2 million, which was higher than the ten-year average value. However, landings of large mesh groundfish, the second most valuable species grouping, were much lower in 2006 than the ten-year average. Landings in Rockport overall were at their peak in 2000, at just below $3.8 million and they declined in subsequent years (Table 19-2). On the other hand, the level of home ported fishing has increased. Home port fishing was less than $1 million until 2005, when the value was just under $2.7 million. Until 2005, the level of landings in Rockport exceeded the level of home port fishing, indicating that vessels from elsewhere were landing their catch in Rockport, but this trend was reversed in 2005 and 2006. The number of vessels home ported in Rockport showed an increasing trend from 36 in 1998 to 50 in 2002, and then declined again to 34 in 2006. The number of owner's city vessels mimicked this trend. The commercial fishing fleet in Rockport is based at the Pigeon Cove Co-op.

Table 19-1 Dollar Value of Federally Managed Groups Landed in Rockport		
Federal Group	**Average from 1997-2006[d]**	**2006 only[d]**
Lobster	$1,586,049	$2,111,831
Largemesh Groundfish[b]	$391,105	$85,015
Other[a]	$48,581	$14,338
Monkfish	$33,496	$14,406
Scallop	$32,217	$8,260
Dogfish	$3,475	$2,190
Smallmesh Groundfish[c]	$2,962	$1
Bluefish	$774	$20
Squid, Mackerel, Butterfish	$607	$0
Skate	$227	$0
Summer Flounder, Scup, Black Sea Bass	$80	$0

Notes:

[a] "Other" species includes any species not accounted for in a federally managed group.

[b] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] All values are reported in nominal U.S. dollars.

Table 19-2 Commercial Fishing Trends in Rockport				
Year	**Number of vessels with Rockport homeport**	**Number of vessels whose owner receives mail in Rockport**	**Value of landings among vessels homeported in Rockport[a]**	**Value of fisheries landed in Rockport[a]**
1997	39	44	$939,320	$669,363
1998	36	44	$954,863	$676,892
1999	37	46	$575,392	$282,941
2000	37	42	$752,045	$3,783,136
2001	47	50	$960,572	$2,654,328
2002	50	52	$956,143	$3,382,901
2003	47	51	$843,435	$3,096,282
2004	43	46	$712,712	$2,308,893
2005	37	37	$2,699,798	$1,904,912
2006	34	35	$2,651,624	$2,236,061

Note:

[a] All values are reported in nominal U.S. dollars.

20. Rye, New Hampshire

The town of Rye (43.01° N, 70.77° W) (USGS 2008) is located in the New Hampshire Seacoast region, on the Atlantic Ocean's coast in Rockingham County. Rye contains 12.6 square miles (33 square km) of land area and 0.5 square miles (1 square km) of inland water area (State of New Hampshire ELMIB 2007).

History

The town was established by David Thompson in 1623 at Odiorne's Point, and named for the borough of Rye, a town on the English Channel. It was part of Portsmouth and then later incorporated as a parish of New Castle in 1726. The town includes the villages of Cable Road, Fairhill Manor, Foyes Corner, Langs Corner, Rye, Rye Beach, Rye Harbor, Rye North Beach, Wallis Sands, and West Rye. It has 8 miles (13 km) if Atlantic coastline, and is the only New Hampshire town with Atlantic islands, the four Isles of Shoals (State of New Hampshire EMLIB 2007).

The increasing reliance on a tourism industry in Rye, as in the rest of the Seacoast, has decreased the economy's reliance on a fishing industry. Rye is significant as a fishing port because of its proximity to fertile fishing grounds of the region (Hall-Arber et al. 2001). Whale watching trips often access Jeffrey's Ledge and Stellwagen Bank National Marine Sanctuary (Blue Ocean 2004; State of New Hampshire ELMIB 2007). Rye Harbor is one of the state's largest saltwater fishing locations (Stedman and Hanson No Date).

Commercial Fishing

The most valuable species landed in Rye averaged for 1997 to 2006 was large-mesh groundfish, followed by lobster and "Other" species (Table 20-1). In 2006, lobster was responsible for the most landed value after groundfish. Overall, the number of boats homeported in Rye has increased, from a low of 25 in 2000 to 39 in 2006 (Table 20-2). The value of homeport fishing also showed a net increase from 1997 to 2006. The level of homeport fishing was higher in all years than the level of landings, indicating that some fishermen from Rye land their catch elsewhere, perhaps in one of the other ports along the New Hampshire sea coast.

Table 20-1 Dollar Value of Federally Managed Groups Landed in Rye	
Federal Group	**Rank Value of Average Landings from 1997-2006[d]**
Large-mesh Groundfish[a]	1
Monkfish	2
Other[b]	3
Lobster	4
Dogfish	5
Scallop	6
Small-mesh Groundfish[c]	7
Bluefish	8
Herring	9
Skate	10
Squid, Mackerel, Butterfish	11
Surf Clams, Ocean Quahog	12

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] Only rank value is provided because value information is confidential in ports with fewer than three vessels or fewer than three dealers, or where one dealer predominates in a particular species and would therefore be identifiable.

Table 20-2 Commercial Fishing Trends in Rye		
Year	**Number of vessels with Portsmouth homeport**	**Number of vessels whose owner receives mail in Portsmouth**
1997	32	29
1998	31	29
1999	29	28
2000	25	25
2001	30	28
2002	32	28
2003	32	28
2004	37	32
2005	37	30
2006	39	30

21. Sandwich, Massachusetts

The town of Sandwich, Massachusetts (41.76º N, 70.49º W) is located on Cape Cod, in Barnstable County. Sandwich sits on Cape Cod Bay, and straddles the Cape Cod Canal, bordering Barnstable to the east and Bourne to the west. This town covers about 44.0 square miles (114 square km) of area, the majority of which is on the Cape side of the canal (State of Massachusetts 2007).

History

Settled in 1637 and incorporated in 1639, Sandwich is the oldest town on Cape Cod. During the 17th and 18th centuries, Sandwich was largely an agricultural community, and in the 19th century, when many neighboring communities were involved in whaling, Sandwich turned to the glass industry, lacking a deep water port. Towards the end of the 19th century, when the railroad was constructed bringing passengers from Boston, Sandwich became a tourist destination and has remained one ever since (Sandwich Cape Cod No Date).

Commercial Fishing

The most valuable species landed in Sandwich in 2006 was lobster, worth just under $3 million. The 2006 landings were slightly higher than the average landings for 1997 to 2006 (Table 21-1). Landings in the "Other" species grouping followed lobster in value ranking; the landings in this category were much lower in 2006 than the ten-year average landed values. Overall, landings in Sandwich were at their peak in 2002, with over $7 million in landings, and declined to $4.4 million in 2006. The level of fishing for homeported boats did not exactly follow the same trend, and was lower in every year than landings in Sandwich, peaking at $3 million in 2005. The number of homeported boats in Sandwich grew from 24 in 1997 to 42 by 2004, and then fell to 29 in 2006 (Table 21-2). Overall, the number of vessels with owners living in Sandwich was much lower, with a maximum of 12, indicating that most vessels homeported in Sandwich are owned by people residing in other communities.

Table 21-1 Dollar Value of Federally Managed Groups Landed in Sandwich		
Federal Group	**Average from 1997-2006[d]**	**2006 only[d]**
Lobster	$2,790,921	$2,864,271
Other[a]	$1,821,055	$1,080,511
Scallop	$224,279	$345,350
Large-mesh Groundfish[b]	$116,434	$112,245
Surf Clams, Ocean Quahog	$27,085	$0
Bluefish	$7,253	$13,458
Summer Flounder, Scup, Black Sea Bass	$5,770	$20,424
Monkfish	$4,117	$2,199
Dogfish	$3,028	$4,438
Squid, Mackerel, Butterfish	$1,658	$3,246
Skate	$1,218	$0
Small-mesh Groundfish[c]	$1	$0

Notes:

[a] "Other" species includes any species not accounted for in a federally managed group.

[b] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] All values are reported in nominal U.S. dollars.

Table 21-2 Commercial Fishing Trends in Sandwich				
Year	**Number of vessels with Sandwich home-port**	**Number of vessels whose owner receives mail in Sandwich**	**Value of landings among vessels home-ported in Sandwich[a]**	**Value of fisheries landed in Sandwich[a]**
1997	24	8	$2,016,631	$3,722,060
1998	25	12	$1,980,134	$2,541,882
1999	28	11	$2,882,891	$3,738,483
2000	31	10	$1,896,309	$5,119,676
2001	36	10	$2,007,609	$5,863,665
2002	38	10	$2,216,414	$7,141,661
2003	36	10	$2,364,539	$6,137,502
2004	42	12	$1,750,891	$5,592,997
2005	33	8	$3,009,016	$5,724,109
2006	29	6	$2,400,632	$4,446,142

Note:

[a] All values are reported in nominal U.S. dollars.

22. Scituate, Massachusetts

The town of Scituate (42.20º N, 70.73º W) is located in the South Shore region of Massachusetts, in Plymouth County, 30 miles south of Boston. Scituate faces Cape Cod Bay and is bordered by Marshfield and Norwell to the south and Cohasset to the north. It encompasses 31.8 square miles (82 square km), of which 17.2 square miles (45 square km) is land, and 14.6 square miles (38 square km) is water (State of Massachusetts 2006).

History

The first permanent European settlement in Scituate was in 1627 or 1628, when a group from Plymouth headed north looking for fertile lands to cultivate. The town was incorporated in 1636 (Town of Scituate 2006). Scituate was an important fishing port by the end of the 18th century because of its protected harbor, but mud flats and shallow water made the harbor difficult to enter, so the town built Scituate Light, completing construction in 1811 (D'Entremont 2006). Shipbuilding was also an important industry to residents of Scituate. Between 1645 and 1871, there were over 1,000 ships built in the North River, which separates Scituate from Marshfield (Marshfield Chamber of Commerce 2006). At the start of the 20th century, Scituate was still a small town with around 2,000 residents and its' commercial fishing fleet continues to add to the town's appeal and historical ties.

Commercial Fishing

Lobster was the most valuable species landed there in 2006, bringing in nearly $1.8 million (Table 24-2). The second most valuable species grouping in 2006 was large-mesh groundfish, followed by monkfish. The landing values for lobster in 2006 were much higher than the average landings values between 1997 and 2006; however, the landings for groundfish in 2006 had declined from the 10-year average. The total landings in Scituate had their highest point in 2000, at about $4.8 million, then declined somewhat in subsequent years. Overall, the number of vessels homeported in Scituate varied between 1997 and 2006, reaching a high of 81 in 2002, and declining to 63 by 2006. The value of fishing to homeported vessels in Scituate increased somewhat during this time period, to $3.4 million in 2006 (Table 22-2). Also of interest is that the number of vessels owned by Scituate residents declined over the same period, indicating that perhaps the vessel owners are moving out of Scituate, or that the vessels are changing hands.

Table 22-1 Dollar Value of Federally Managed Groups Landed in Scituate		
Federal Group	**Average from 1997-2006[d]**	**2006 only[d]**
Large-mesh Groundfish[a]	$1,423,269	$1,221,144
Lobster	$1,258,349	$1,773,974
Monkfish	$402,945	$188,020
Dogfish	$74,765	$17,572
Other[b]	$29,467	$34,964
Skate	$16,538	$23,924
Squid, Mackerel, Butterfish	$12,405	$668
Scallop	$9,034	$28,418
Bluefish	$4,775	$1,290
Summer Flounder, Scup, Black Sea Bass	$3,539	$1,452
Surf Clams, Ocean Quahog	$2,459	$0
Small-mesh Groundfish[c]	$1,926	$31
Tilefish	$144	$0

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] All values are reported in nominal U.S. dollars.

Table 22-2 Commercial Fishing Trends in Scituate				
Year	**Number of vessels with Scituate home-port**	**Number of vessels whose owner receives mail in Scituate**	**Value of landings among vessels home-ported in Scituate[a]**	**Value of fisheries landed in Scituate[a]**
1997	79	55	$2,573,583	$1,371,648
1998	70	50	$2,727,569	$2,855,762
1999	78	59	$2,015,519	$2,092,982
2000	75	53	$2,934,249	$4,770,224
2001	79	50	$2,093,487	$3,484,206
2002	81	50	$2,258,030	$3,837,513
2003	74	49	$2,597,671	$4,219,873
2004	77	53	$2,798,574	$3,815,547
2005	68	48	$2,845,396	$2,763,997
2006	63	44	$3,460,992	$3,291,457

Note:

[a] All values are reported in nominal U.S. dollars.

23.

24. Seabrook, New Hampshire

The city of Seabrook, New Hampshire (42.89°N, 70.87°W) is located in Rockingham County, at the border of New Hampshire and Maine (USGS 2008). Seabrook contains 9.0 square miles of land area and 0.6 square miles of inland water area (ELMIB 2007). Hampton borders Seabrook to the north; the two share a harbor and are connected by a causeway along the shore, and fishing activity in the two communities is difficult to separate.

History

Seabrook was first settled in 1638, at the time as a part of Hampton. Incorporated as a separate town in 1768, it was named Seabrook after the Seabrook River which runs through the town. The boundary between Hampton and Seabrook was the subject of dispute for nearly two centuries, and was finally settled in court in 1953 (ELMIB 2007). Most of the town's early inhabitants were engaged in the farming and fishing industries. Many of the current residents can trace their ancestry to the first Quaker settlers in the town. Today, Seabrook is a community with miles of beaches, attracting thousands of tourists, with an active harbor surrounded by a thriving business sector (Town of Seabrook 2008). It is also well known for the Seabrook Nuclear Power Plant, a source of much controversy when it was constructed (ELMIB 2007).

Commercial Fishing

The commercial industry in Hampton/Seabrook estuary is very active. However, most the wholesalers and retailers of seafood are located in Hampton. The Yankee Fisherman's Cooperative Pier in Hampton Harbor has a seafood processing facility which handles shellfish and finfish landings from both Seabrook and Hampton (Jones 2000). In 2002 recorded annual landings for New Hampshire totaled 23.2 million pounds with a landing value of $16.7 million (NMFS 2002) and for 2007 were 19.1 million and $8.4 million (NMFS 2007).

Landings in the large-mesh groundfish grouping were the most valuable on average in Seabrook from 1997-2006, followed by lobster and monkfish (Table 24-1). Landings of all three of these were higher in 2006 than the ten-year average value. The number of vessels fishing, both those with Seabrook listed as a home port and those whose owners resided in Seabrook, showed considerable variability over the 1997-2006 period with no obvious trend, from a low of 28 in 1999 and 2005 to a high of 45 in 2006. Owner's city vessels were similarly variable (Table 24-2). (Note: Much of the landings data are listed as Hampton/Seabrook and are included in the Hampton, NH community profile. Please see that profile for more information)

Other commercial fisheries in the Hampton/Seabrook estuary include herring, baitfishing for alewives, mummichogs (Fundulus sp.) and tomcod using gillnets, seines and minnow traps; trapping for eels, and angling and dipnetting for smelt.

Table 24-1 Dollar Value of Federally Managed Groups Landed in Seabrook	
Federal Group	**Rank Value of Average Landings from 1997-2006[d]**
Large-mesh Groundfish[a]	1
Lobster	2
Monkfish	3
Other[b]	4
Small-mesh Groundfish[c]	5
Dogfish	6
Scallop	7
Herring	8
Bluefish	9
Skate	10
Squid, Mackerel, Butterfish	11

Notes:

[a] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[b] "Other" species includes any species not accounted for in a federally managed group

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] Only rank value is provided because value information is confidential in ports with fewer than three vessels or fewer than three dealers, or where one dealer predominates in a particular species and would therefore be identifiable.

Table 24-2 Commercial Fishing Trends in Seabrook		
Year	**Number of vessels with Seabrook homeport**	**Number of vessels whose owner receives mail in Seabrook**
1997	38	30
1998	30	23
1999	28	25
2000	31	29
2001	38	32
2002	37	31
2003	33	29
2004	31	26
2005	28	22
2006	45	31

25. Southwest Harbor, Maine

The town of Southwest Harbor, Maine (44.15°N, 68.19°W) is located in Hancock County. The town is 14 miles from Bar Harbor, 85 miles from Rockland, and 124 miles from Augusta. Southwest Harbor contains 13.9 square miles of land area (State of Maine 2004).

History

Southwest Harbor, "a small community on a great harbor," is actually a community of two halves. The main community is at Manset, with a smaller community on the northern peninsula at Clark's Point. The community at Clark's Point gained prominence in the 1850s when a wharf large enough to accommodate steamboats and later a cannery was built. By 1866, the cannery was boiling 2,500 lobsters a day, providing a new opportunity for fishermen by increasing demand for a product sometimes used as fertilizer. The main community at Manset housed numerous shipyards and fishing outfits. By the late 19th century, this was a major center for cod fisheries, providing dried cod for eastern markets. The communities at Southwest Harbor were part of Tremont, which would also include McKinley (later Bass Harbor), Bernard and Seal Cove. Community differences and disagreements in development led to the breakaway of Southwest Harbor in 1905. The steamboats brought great changes. After the Civil War, steamboats brought travelers on vacation from the Eastern cities. Today's economy is based on tourism and summer homes are prevalent. The canneries are gone and the cod fishery has declined but fishermen still use the harbor (Honey 2002).

Commercial Fishing

Lobster was by far the most valued species landed in Southwest Harbor (Table 25-1). The value of lobster landed in Southwest Harbor in 2006 was less than the average value of landings for the period 1997-2006. The number of vessels home ported in Southwest Harbor declined from 26 in 1997 to 19 in 1998, but rose back to 25 vessels by 2006 (Table 25-2). The number of vessels with owners living in Southwest Harbor (owner's city) increased in this time period, from 16 in 1997 to 26 in 2006.

Table 25-1 Dollar Value of Federally Managed Groups Landed in Southwest Harbor	
Federal Group	**Rank Value of Average Landings from 1997-2006[c]**
Lobster	1
Scallop	2
Other[a]	3
Large-mesh Groundfish[b]	4
Monkfish	5

Notes:

[a] "Other" species includes any species not accounted for in a federally managed group.

[b] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[c] Only rank value is provided because value information is confidential in ports with fewer than three vessels or fewer than three dealers, or where one dealer predominates in a particular species and would therefore be identifiable.

Table 25-2 Commercial Fishing Trends in Southwest Harbor		
Year	**Number of vessels with Southwest Harbor homeport**	**Number of vessels whose owner receives mail in Southwest Harbor**
1997	26	16
1998	19	16
1999	19	18
2000	20	19
2001	19	15
2002	20	16
2003	25	20
2004	20	19
2005	24	22
2006	25	26

26. Stonington, Maine

The town of Stonington (44.09°N, 68.38°W) is located in Hancock County on Deer Isle in Downeast Maine. Stonington is 103 miles (166 km) northeast of Augusta, Maine and has a total area of 37.8 square miles (98 square km), of which 28.0 square miles (73 square km) is water (State of Maine 2004e).

History

Between 1870 and 1925, enormous quantities of granite were produced from quarries in Stonington and on Crotch Island. Stonington, originally known as Green's Landing, earned its new name because of this granite industry. The granite industry subsequently declined and the quarries closed, and fishing became Stonington's most important industry (Maine Coast Guide 2002). Clam, mussel, and lobster fishing activities have replaced a once-popular urchin fishery from Stonington's Pier in the 1990's (Ellsworth American 2002b).

Commercial Fishing

Lobster landings were by far the most valuable landings in Stonington (Table 27-1), with 2006 landings close to double the 1997-2006 average value. Landings of "Other" species and herring were also valuable, and landings of both were higher in 2006 than the 10-year average values. The number of homeport vessels saw a large increase in the 10-year time period, from 44 in 1997 to 80 in 2005 (Table 27-2). Relatively low homeport values suggest few vessels from Stonington are landing catch in their homeport.

Table 27-1
Dollar Value of Federally Managed Groups Landed in Stonington, ME

Federal Group	Rank Value of Average Landings from 1997-2006[d]
Lobster	1
Other[a]	2
Herring	3
Scallop	4
Large-mesh Groundfish[b]	5
Monkfish	6
Skate	7
Small-mesh Groundfish[c]	8
Squid, Mackerel, Butterfish	9
Summer Flounder, Scup, Black Sea Bass	10
Bluefish	11

Notes:

[a] "Other" species includes any species not accounted for in a federally managed group.

[b] Large-mesh groundfish: cod, winter flounder, yellowtail flounder, American plaice, sand-dab flounder, haddock, white hake, redfish, and pollock.

[c] Small-mesh multispecies: red hake, ocean pout, mixed hake, black whiting, silver hake (whiting).

[d] Only rank value is provided because value information is confidential in ports with fewer than three vessels or fewer than three dealers, or where one dealer predominates in a particular species and would therefore be identifiable.

Table 27-2 Commercial Fishing Trends in Stonington, ME		
Year	**Number of vessels with Stonington homeport**	**Number of vessels whose owner receives mail in Stonington**
1997	44	36
1998	44	33
1999	46	33
2000	49	35
2001	52	33
2002	59	40
2003	66	45
2004	71	46
2005	80	51
2006	76	49