# Framework Adjustment 45

# Draft

# November 9, 2010

***Measures underlined and in italics are new***

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# 1.0 Executive Summary

(*To be completed*)

# 2.0 Table of Contents

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(To be completed)

# 3.0 Introduction and Background

## *3.1 Background*

The primary statute governing the management of fishery resources in the Exclusive Economic Zone (EEZ) of the United States is the Magnuson-Stevens Fishery Conservation and Management Act (M-S Act). In brief, the purposes of the M-S Act are:

> (1) to take immediate action to conserve and manage the fishery resources found off the coasts of the United States;
>
> (2) to support and encourage the implementation and enforcement of international fishery agreements for the conservation and management of highly migratory species;
>
> (3) to promote domestic and recreational fishing under sound conservation and management principles;
>
> (4) to provide for the preparation and implementation, in accordance with national standards, of fishery management plans which will achieve and maintain, on a continuing basis, the optimum yield from each fishery;
>
> (5) to establish Regional Fishery Management Councils to exercise sound judgment in the stewardship of fishery resources through the preparation, monitoring, and revisions of such plans under circumstances which enable public participation and which take into account the social and economic needs of the States.

In New England, the New England Fishery Management Council (NEFMC) is charged with developing management plans that meet the requirements of the M-S Act.

The Northeast Multispecies Fishery Management Plan (FMP) specifies the management measures for thirteen groundfish species (cod, haddock, yellowtail flounder, pollock, plaice, witch flounder, white hake, windowpane flounder, Atlantic halibut, winter flounder, yellowtail flounder, ocean pout, and Atlantic wolffish) off the New England and Mid-Atlantic coasts. Some of these species are sub-divided into individual stocks that are attributed to different geographic areas. Commercial and recreational fishermen harvest these species. The FMP has been updated through a series of amendments and framework adjustments.

The most recent amendment, published as Amendment 16, became effective on May 1, 2010. This amendment adopted a broad suite of management measures in order to achieve fishing mortality targets necessary to rebuild overfished stocks and meet other requirements of the M-S Act. Amendment 16 adopted a process for setting Annual Catch Limits that requires catch levels to be set in biennial specifications packages.

The most recent framework, published as Framework 44, became effective on May 1, 2010 concurrently with Amendment 16. It adopted the required specifications for regulated Northeast multispecies stocks, as well as stocks managed by the U.S./Canada Resource Sharing Agreement. It was also used to incorporate the best available information in adjusting effort control measures adopted in Amendment 16.

This framework is intended to build upon revisions made to the sector program in Amendment 16 and Framework 44, and also to set specifications required under the U.S./Canada Resource Sharing Agreement and incorporating an updated stock assessment for pollock.

## *3.2 Purpose and Need for the Action*

The Northeast Multispecies FMP requires that the NMFS Regional Administrator, after consultation with the Council, determine the specifications for the groundfish fishery. The FMP requires the Council and the Regional Administrator to review the best available information regarding the status of the resource and fishery and develop appropriate fishery specifications.

Previous amendments to the FMP established processes to evaluate fishing mortality and rebuilding progress. If necessary as a result of these evaluations, periodic framework adjustments were planned to facilitate any changes to the management program that may prove necessary in order to comply with the rebuilding programs and to provide an opportunity to adjust other management measures as necessary.

These specifications and adjustments to Amendment 16 are intended to meet the goal and many of the objectives of the Northeast Multispecies FMP, as modified in Amendment 16, specifically:

| *Need* | *Purpose* |
|---|---|
| Set specifications for ACLs in Fishing Years 2011-2012 consistent with best available science and the ABC control rules adopted in Amendment 16 to the Northeast Multispecies FMP | • Revisions to status determination criteria, including updated pollock assessment<br>• Revision of rebuilding strategy for GB yellowtail flounder<br>• Measures to adopt ACLs, including incidental catch TACs<br>• Measures to adopt TACs for U.S./Canada area |
| Update fishery program administration in order to enhance viability of the fishery since the implementation of Amendment 16 | • Allow for implementation of additional sectors<br>• Adjust monitoring requirements<br>• Determine distribution of PSC from canceled permits into fishery |
| Modify management measures in order to ensure that overfishing does not occur consistent with the status of stocks, the National Standard guidelines, and the requirements of the MSA of 2006 | • Spawning closure for cod in the Gulf of Maine<br>• Adjust trip limits for Handgear A vessels<br>• Exemption for General Category scallop vessels from yellowtail flounder spawning closure |
| Minimize, to the extent practicable, the adverse effects of fishing on essential fish habitat to comply with section 303(a)(7) of the Magnuson-Stevens Act | • Identify other actions to encourage the conservation and enhancement of EFH. |

## *3.3 Brief History of the Northeast Multispecies Management Plan*

Groundfish stocks were managed under the M-S Act beginning with the adoption of a groundfish plan for cod, haddock, and yellowtail flounder in 1977. This plan relied on hard quotas (total allowable catches, or TACs), and proved unworkable. The quota system was rejected in 1982 with the adoption of the Interim Groundfish Plan, which relied on minimum fish sizes and codend mesh regulations for the Gulf of Maine and Georges Bank to control fishing mortality. The interim plan was replaced by the Northeast Multispecies FMP in 1986, which established biological targets in terms of maximum spawning potential and continued to rely on gear restrictions and minimum mesh size to control fishing mortality. Amendment 5 was a major revision to the FMP. Adopted in 1994, it implemented reductions in time fished (days-at-sea, or DAS) for some fleet sectors and adopted year-round closures to control mortality. A more detailed discussion of the history of the management plan up to 1994 can be found in Amendment 5 (NEFMC 1994). Amendment 7 (NEFMC 1996), adopted in 1996, expanded the DAS program and accelerated the reduction in DAS first adopted in Amendment 5. After the implementation of Amendment 7, there were a series of amendments and smaller changes (framework adjustments) that are detailed in Amendment 13 (NEFMC 2003). Amendment 13 was developed over a four-year period to meet the M-S Act requirement to adopt rebuilding programs for stocks that are overfished and to end overfishing. Amendment 13 also brought the FMP into compliance with

other provisions of the M-S Act. Subsequent to the implementation of Amendment 13, FW 40A provided opportunities to target healthy stocks, FW 40B improved the effectiveness of the effort control program, and FW 41 expanded the vessels eligible to participate in a Special Access Program (SAP) that targets GB haddock. FW 42 included measures to implement the biennial adjustment to the FMP as well as a Georges Bank yellowtail rebuilding strategy, several changes to the Category B (regular) DAS Program and two Special Access Programs, an extension of the DAS leasing program, and introduced the differential DAS system. FW 43 adopted haddock catch caps for the herring fishery and was implemented August 15, 2006. Amendment 16 was adopted in 2009 and provided major changes in the realm of groundfish management. Notably, it greatly expanded the sector program and implemented Annual Catch Limits in compliance with 2006 revisions to the M-S Act. The amendment also included a host of mortality reduction measures for "common pool" (i.e. non-sector) vessels and the recreational component of the fishery. Framework 44 was also adopted in 2009, and it set specifications for FY 2010 – 2012 and incorporated the best available information in adjusting effort control measures adopted in Amendment 16. A more detailed description of the history of the FMP is included in Amendment 16.

## *3.4 National Environmental Policy Act (NEPA)*

NEPA provides a structure for identifying and evaluating the full spectrum of environmental issues associated with Federal actions, and for considering a reasonable range of alternatives to avoid or minimize adverse environmental impacts. This document is a combined framework adjustment to a fishery management plan and an environmental assessment (EA). An EA provides an analysis of a Proposed Action, the alternatives to that action that were considered, and the impacts of the action and the alternatives. An EA is prepared rather than an Environmental Impact Statement (EIS) when the environmental impacts are not expected to be significant. The required NEPA elements for an EA are discussed in section 8.2. The evaluation that this action will not have significant impacts is in section 8.2.2, and the required Finding of No Significant Impact (FONSI) statement is included at the end of that section.

# 4.0 Proposed Action

## *4.1 Updates to Status Determination Criteria, Formal Rebuilding Programs, and Annual Catch Limits*

### 4.1.1 Revised Status Determination Criteria

**Option 1: No Action**

If no action is adopted, there will be no revisions to status determination criteria for pollock. The following criteria, as implemented in Amendment 16, would apply:

**Table 1 – No Action status determination criteria**

| Species | Model | $B_{msy}$ or proxy (mt) | $F_{msy}$ or proxy |
|---|---|---|---|
| Pollock | External | ½ $B_{target}$ | Rel F at replacement |

Numerical estimates of SDCs are in Table 2.

**Table 2 – No Action numerical estimates of status determination criteria from GARM III assessment meetings and the Data Poor Working Group**

| Species | Stock | Model | $B_{msy}$ or proxy (mt) | $F_{msy}$ or proxy | MSY (mt) |
|---|---|---|---|---|---|
| Pollock | GB/GOM | AIM | 2.00 kg/tow | 5.66 c/i | 11,320 |

**Option 2: Revised Status Determination Criteria for Pollock**
***Groundfish Committee Preferred Alternative***

The M-S Act requires that every fishery management plan specify "objective and measureable criteria for identifying when the fishery to which the plan applies is overfished." Guidance on this requirement identifies two elements that must be specified: a maximum fishing mortality threshold (or reasonable proxy) and a minimum stock size threshold. The M-S Act also requires that FMPs specify the maximum sustainable yield and optimum yield for the fishery. Amendment 16 adopted status determination criteria for regulated groundfish stocks as determined by the GARM III (NEFSC 2008) and, in the case of Atlantic wolffish, the DPWG (2009).

Due to concerns about the GARM III assessment for pollock, the NEFSC conducted a new assessment in 2010. The assessment adopted a new model and recommended revised status determination criteria. This action would adopt the revised status determination criteria for this stock.

The updated assessment concluded the pollock stock is not subject to overfishing and is not overfished. As a result, the stock is no longer subject to the formal rebuilding program adopted by Amendment 16.

**Table 3 - Proposed action status determination criteria**

| Species | Biomass Target ($SSB_{MSY}$ or proxy) | Minimum Biomass Threshold | Maximum Fishing Mortality Threshold ($F_{MSY}$ or proxy) |
|---|---|---|---|
| Pollock | $SSB_{MSY}$: SSB/R (40%MSP) | ½ $B_{target}$ | F40%MSP |

**Table 4 – Proposed numerical estimates of revised status determination criteria**

| Species | Model | Bmsy or proxy (mt) | Fmsy or proxy | MSY (mt) |
|---|---|---|---|---|
| Pollock | ASAP | 91,000 | 0.41 | 16,200 |

### 4.1.2 Revised GB Yellowtail Flounder Rebuilding Mortality Targets

**Option 1: No Action**

If the No Action alternative is adopted, the rebuilding strategy for GB yellowtail flounder will use a fishing mortality target that is calculated to rebuild the stock by 2014 with a 75 percent probability of success. This rebuilding plan was started in 2006, and is therefore 8 years in duration. The M-S Act requires that overfished stocks be rebuilt within a 10-year period.

**Option 2: Revised Rebuilding Target for Georges Bank Yellowtail Flounder**

The Council is considering a revision to the rebuilding strategy for GB yellowtail flounder. There are four sub-options under consideration:

Sub-option A: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 50 percent probability of success **(Groundfish Committee Preferred Alternative)**
Sub-Option B: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 60 percent probability of success
Sub-Option C: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 75 percent probability of success
*Sub-Option D: Use a fishing mortality target that is calculated to rebuild the stock by 2019 with a 60 percent probability of success*

### 4.1.3 Annual Catch Limit Specifications

**Option 1: No Action**
If this option is selected, the OFLs/ABCs/ACLs for FY 2011 and FY 2012 will not be modified and will remain as specified in FW 44. Table 5 lists these values for the stocks of interest in this action.

*With respect to GB yellowtail flounder, this No Action option is different than if the rebuilding strategy for the stock is not changed. This alternative assumes that the ACLs for GB yellowtail flounder are not changed from those specified in FW 44, regardless of the decision on the proposed rebuilding strategy.*

**Table 5 – Option 1; No Action Alternative. OFLs, ABCs, ACLs, and other ACL sub-components for FY 2011 – FY 2012 (metric tons, live weight). Values are rounded to the nearest metric ton. Sector and common pool shares are based on FY 2010 shares will be updated when final FY 2011 sector rosters are known. Greyed cells may change as a result of future TMGC recommendations.**

| Stock | Year | OFL | U.S. ABC | State Waters Sub-component | Other Sub-Components | Scallops (1) | Groundfish Sub-ACL | Comm Groundfish Sub-ACL | Rec Groundfish Sub-ACL | Prelim-inary Sectors Sub-ACL | Preliminary Non_Sector Groundfish Sub-ACL | MWT Sub_ ACL | Total ACL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GB Cod(2) | 2010 | 6,272 | 3,800 | 38 | 152 | 0 | 3,430 | | | 3,256 | 174 | 0 | 3,620 |
| | 2011 | 7,311 | 5,616 | 56 | 225 | 0 | 5,068 | | | 4,812 | 257 | 0 | 5,349 |
| | 2012 | 8,090 | 6,214 | 62 | 249 | 0 | 5,608 | | | 5,324 | 284 | 0 | 5,919 |
| GB Haddock(2) | 2010 | 80,007 | 44,903 | 449 | 1,796 | 0 | 40,440 | | | 39,313 | 1,127 | 84 | 42,768 |
| | 2011 | 59,948 | 46,784 | 468 | 1,871 | 0 | 42,134 | | | 40,959 | 1,174 | 87 | 44,560 |
| | 2012 | 51,150 | 39,846 | 398 | 1,594 | 0 | 35,885 | | | 34,885 | 1,000 | 74 | 37,952 |
| GB Yellowtail Flounder(2) | 2010 | 5,148 | 1,200 | 0 | 60 | 146 | 964 | | 0 | 902 | 63 | 0 | 1,170 |
| | 2011 | 6,083 | 1,081 | 0 | 54 | **201** | **795** | | 0 | **744** | **52** | 0 | **1,050** |
| | 2012 | 7,094 | 1,226 | 0 | 61 | **307** | **823** | | 0 | **769** | **53** | 0 | **1,191** |
| White Hake | 2010 | 4,130 | 2,832 | 28 | 113 | 0 | 2,556 | | | 2,435 | 121 | 0 | 2,697 |
| | 2011 | 4,805 | 3,295 | 33 | 132 | 0 | 2,974 | | | 2,833 | 141 | 0 | 3,138 |
| | 2012 | 5,306 | 3,638 | 36 | 146 | 0 | 3,283 | | | 3,128 | 156 | 0 | 3,465 |
| Pollock | 2010 | 5,085 | 3,293 | 200 | 200 | 0 | 2,748 | | | 2,630 | 118 | 0 | 3,148 |
| | 2011 | 5,085 | 3,293 | 200 | 200 | 0 | 2,748 | | | 2,630 | 118 | 0 | 3,148 |
| | 2012 | 5,085 | 3,293 | 200 | 200 | 0 | 2,748 | | | 2,630 | 118 | 0 | 3,148 |

**Option 2: Revised Annual Catch Limit Specifications for Modified Stocks (Groundfish Committee Preferred Alternative)**

Consistent with the process established by Amendment 16, and the ABC control rules adopted by that action, this action proposes the Acceptable Biological Catch (ABC) and Annual Catch Limits (ACLs) for pollock as modified in section 4.1.1 for FY 2011 – FY 2014. It also proposes a revised ACL for GB yellowtail flounder for FY 2011 – FY 2012 due to the change in the rebuilding strategy as discussed in section 4.1.2. It also corrects an error in the white hake ACL published in the *Federal Register* for FY 2011, and lists the ACLs for GB cod, GB haddock, and GB yellowtail flounder that reflect the Council's action on the recommendations from the TMGC. These ACLs will be the basis for determining whether Accountability Measures (AMs) are triggered as described in Amendment 16. As a result of the adoption of these ACLs, the incidental catch TACs that are applicable to the Category B (regular) DAS Program and certain Special Access Programs are also defined. *Note that with the revised status if pollock, pollock is no longer a stock of concern and so incidental catch TACs are not specified and the incidental catch trip limits are no longer applicable to this stock.*

The ABCs and ACLs proposed are shown in Table 6. This table includes the Overfishing Limits (OFLs) for each stock. The ABCs are those recommended by the Science and Statistical Committee (SSC). The incidental catch TACs for the same period are shown in

Table 7. The general approach for calculating these values begins with the ABCs set by the SSC. The ABC is distributed among the various components of the fishery as described in Amendment 16 and its appendices. Each ABC is then adjusted for management uncertainty, where appropriate, using the adjustments approved by the Council.

Since the Council is considering four alternative rebuilding strategies for GB yellowtail flounder, Table 6 shows the OFLs and ABCs for all *five* strategies*. The ABC decision for GB yellowtail flounder is linked to the decision on the rebuilding strategy (section 4.1.2). The choice of a particular strategy determines the ABC choice. The ACLs for a given strategy are linked to the decision for the U.S./Canada TACs (section 4.1.4). These calculations assume the Council adopts the TMGC recommendations for GB yellowtail flounder and then reduces U.S. catches to remain below the ABC.* Note that for Sub-Option C the total ABC is less than the Canadian share of the TMGC recommendation and as a result there is no GB yellowtail flounder for U.S. fishermen (unless the recommendation is renegotiated).

The FY 2012 ACLs for GB yellowtail flounder may be modified as a result of future decisions of the Transboundary Management Guidance Committee (TMGC). Allocation of these stocks under the terms of the U.S./Canada Resource Sharing Understanding will affect the amount available for U.S. fishermen.

As noted in Amendment 16, it is expected that the ABCs and ACLs for FY 2012 – FY 2014 will be calculated and adopted before the FY 2012 ACL for white hake in this action is used. The FY 2012 values here are specified in case there is a future delay in updating the ACLs.

Pollock ACLs are not expected to be revisited until 2013.

***ACLs below are preliminary***

**Table 6 – Option 2. OFLs, ABCs, ACLs, and other ACL sub-components for FY 2011 – FY 2012 (metric tons, live weight). Values are rounded to the nearest metric ton. Sector and common pool shares are based on FY 2010 shares and will be updated when final FY 2011 sector rosters are known. Greyed cells may change as a result of future TMGC recommendations.**

| Stock | Year | OFL | U.S. ABC | State Waters Sub-component | Other Sub-Components | Scallop Sub-ACL | Groundfish Sub-ACL | Comm Groundfish Sub-ACL | Rec Groundfish Sub-ACL | Preliminary Sectors Sub-ACL | Preliminary Non_Sector Groundfish Sub-ACL | MWT Sub_ ACL | Total ACL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GB Cod | 2011 | 7,311 | 4,766 | 48 | 191 | 0 | 4,301 | | 0 | 4,129 | 172 | 0 | 4,540 |
| | 2012 | 8,090 | 5,364 | 54 | 215 | 0 | 4,841 | | 0 | 4,647 | 194 | 0 | 5,109 |
| GB Haddock | 2011 | 59,948 | 34,244 | 342 | 1,370 | 0 | 30,840 | | 0 | 30,223 | 617 | 64 | 32,616 |
| | 2012 | 51,150 | 29,016 | 290 | 1,161 | 0 | 26,132 | | 0 | 25,609 | 523 | 54 | 27,637 |
| GB Yellowtail Flounder (No Action) | 2011 | 3,495 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| | 2012 | 4,335 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| GB Yellowtail Flounder (A) | 2011 | 3,495 | 1,099 | 0 | 54 | 201 | 791 | | 0 | 767 | 24 | 0 | 1,045 |
| | 2012 | 4,335 | 1,222 | 0 | 51 | 307 | 686 | | 0 | 666 | 21 | 0 | 1,045 |
| GB Yellowtail Flounder (B) | 2011 | 3,495 | 631 | 0 | 32 | 201 | 381 | | 0 | 369 | 11 | 0 | 613 |
| | 2012 | 4,011 | 844 | 0 | 42 | 307 | 470 | | 0 | 456 | 14 | 0 | 820 |
| GB Yellowtail Flounder (C) | 2011 | 3,495 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| | 2012 | 4,208 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| GB Yellowtail Flounder (D) | 2011 | 3,495 | 1,421 | 0 | 51 | 201 | 793 | | 0 | 770 | 24 | 0 | 1,045 |
| | 2012 | 3,728 | 1,531 | 0 | 48 | 307 | 690 | | 0 | 669 | 21 | 0 | 1,045 |
| White Hake | 2011 | 4,805 | 3,295 | 33 | 132 | 0 | 2,974 | | | 2,833 | 141 | 0 | 3,138 |
| | 2012 | 5,306 | 3,638 | 36 | 146 | 0 | 3,283 | | | 3,128 | 156 | 0 | 3,465 |
| Pollock | 2011 | 21,853 | 16,900 | 769 | 1,445 | 0 | 13,952 | | 0 | 13,394 | 558 | 0 | 16,166 |
| | 2012 | 19,887 | 15,400 | 754 | 1,370 | 0 | 12,612 | | 0 | 12,108 | 504 | 0 | 14,736 |
| | 2013 | 20,060 | 15,600 | 756 | 1,380 | 0 | 12,791 | | 0 | 12,279 | 512 | 0 | 14,927 |
| | 2014 | 20,554 | 16,000 | 760 | 1,400 | 0 | 13,148 | | 0 | 12,622 | 526 | 0 | 15,308 |

(1) Greyed-out values may be adjusted as a result of future recommendations of the TMGC. Values shown for GB haddock and cod in 2011 and 2012 are the maximum possible and do not include any Canadian catch.

**Table 7 – Preliminary incidental catch TACs for Special Management Programs (metric tons, live weight). These values may change as a result of changes in sector membership.** ***(Note: values for GB yellowtail flounder to be added after Council selects rebuilding strategy*****)**

| | Cat B (regular) DAS Program | | CAI Hook Gear Haddock SAP | | EUS/CA Haddock SAP | |
|---|---|---|---|---|---|---|
| **Stock** | **2011** | **2012** | **2011** | **2012** | **2011** | **2012** |
| GB Yellowtail | | | | | | |

### 4.1.4 U.S./Canada Resource Sharing Understanding TACs

**Option 1: No Action**

If no action is taken on specifications, the recommendations of the TMGC will also not be implemented and there will be no TAC for GB cod, haddock, or yellowtail flounder in the U.S./Canada area for FY 2011. Vessels would still be constrained by the other regulations of the FMP, including days-at-sea (DAS), sector regulations, and closed areas.

**Option 2: U.S./Canada TACs**
**(Groundfish Committee Preferred Alternative)**

This alternative specifies hard TACs for the U.S./Canada Management Area for FY 2011 (May 1, 2011 – April 30, 2012) as indicated in Table 8 below. These TACs would be in effect for the remainder of the fishing year, unless NMFS determines that the catch of GB cod, haddock, or yellowtail flounder from the U.S./Canada Management Area in FY 2010 exceeded the pertinent 2010 TAC. The Understanding and the regulations require that if a TAC is exceeded in a particular fishing year, then the TAC for the subsequent fishing year is reduced by the amount of the overage (TAC adjustment). In order to minimize any disruption of the fishing industry, NMFS would attempt to make any necessary TAC adjustments in the first quarter of the fishing year.

**Table 8 - Proposed FY 2011 U.S./Canada TACs (mt) and Percentage Shares**

| | Eastern GB Cod | Eastern GB Haddock | GB Yellowtail Flounder |
|---|---|---|---|
| Total Shared TAC | 1,050 | 22,000 | 1,900 |
| U.S. TAC | 200 | 9,640 | 1,045 |
| Canada TAC | 850 | 12,540 | 855 |

The size of the proposed 2011 TACs relative to the 2010 TACs is shown in Table 9.

**Table 9 - Comparison of Proposed FY 2011 U.S./Canada TACs with FY 2010 TACs**

| Stock | FY 2010 (mt) | FY 2011 (mt) | Percent Change |
|---|---|---|---|
| Eastern GB cod | 338 | 200 | -41% |
| Eastern GB haddock | 11,988 | 9,640 | -20% |
| GB yellowtail | 1,200 | 1,045 | -13% |

More information on the calculation of the percentage shares may be accessed through the TMGC web site at the following address:
http://www.mar.dfo-mpo.gc.ca/science/tmgc/background/share.pdf.

### 4.1.5 Yellowtail Flounder Allocations for the Scallop Fishery

*Amendment 16 adopts ACLs for groundfish stocks. Some of these ACLs are divided into either sub-ACLs that are subject to accountability measures (AMs), or other sub-components that are*

*not subject to AMs. The amendment proposes that a portion of yellowtail flounder will be allocated to the scallop fishery. In FY 2010, the allocation is considered a sub-component, while in FY 2011 and beyond it will be considered a sub-ACL subject to AMs that will be adopted in Scallop Amendment 15. FW 44 adopted values for FY 2010 – 2012, but noted that the values for FY 2011 and FY 2012 may be revised in the future based on updated scallop and yellowtail flounder stock information, TMGC recommendations, and on future scallop fishery access area measures. This measure considers such adjustments as a result of the 2010 TRAC and Scallop Framework 22.*

***Option 1: No Action***

*Under this option, the scallop fishery yellowtail flounder allocations implemented in FW 44 would not be changed. Allocations were only specified for FY 2010 – 2012. The allocations are shown in Table 10. Note that in this instance "No Action" refers to keeping the FY 2011 and FY 2012 yellowtail founder allocations (in terms of weight) specified in FW 44 and not a specific suite of scallop management measures.*

***Option 2: Revised allocations***

*An estimate of the yellowtail flounder that will be caught by the scallop fishery in FY 2011 – FY 2013 if it harvests its projected yield was developed for four scallop management scenarios. In FW 44, the Council based the FY 2011 and 2012 yellowtail flounder allocation to the scallop fishery on 90 percent of this expected catch. For CC/GOM yellowtail flounder, scallop fishery incidental catches are low enough that they will be considered part of the "other sub-component". These catches will be monitored but a specific allocation will not be made in this action. An allocation may be made in the future.*

*Allocations are adjusted for management uncertainty when the allocation becomes a sub-ACL (in FY 2011 and beyond). As explained in Appendix III, for GB yellowtail flounder the sub-ACL will be set at 97 percent of the allocation, for CC/GOM yellowtail flounder (if/when specified) the sub-ACL will be set at 95 percent of the allocation, while for SNE/MA yellowtail flounder it will be set at 93 percent of the allocation. As noted in Amendment 16 the management uncertainty adjustments may be changed in the future.*

*The resulting values are shown in Table 10 for the scallop management scenario proposed in Scallop Framework Adjustment 22, as well as the No Action alternative (Option 1).*

*Rationale: This alternative recognizes the importance of yellowtail flounder to the prosecution of the scallop fishery and allocates most of the yellowtail flounder that the fishery is expected to catch if it harvests the available scallop yield. It also creates an incentive for scallop fishermen to reduce bycatch of yellowtail flounder in order to maximize scallop yield. With respect to Cape Cod/Gulf of Maine yellowtail flounder, no allocation is made since the incidental catch is a low percentage of the available catch (less than 5 percent) and can be accommodated by the "other sub-components" category. An allocation of this stock may be made in the future.*

**Table 10 - Proposed allocation of yellowtail flounder to the scallop fishery. Values are metric tons, live weight, rounded to the nearest 0.1 metric ton.**

| **Groundfish No Action** | *Total Expected to be Caught, YTF Stock Area* | | | *Scallop Fishery ABC* | | | *Sub-ACL* | | |
|---|---|---|---|---|---|---|---|---|---|
| *Year* | *GB* | *SNEMA* | *CC/GOM* | *GB* | *SNEMA* | *CC/GOM* | *GB* | *SNEMA* | *CC/GOM* |
| 2011 | Depends on Scallop FW 22 | | | 203 | 86 | | 197 | 80 | |
| 2012 | decision | | | 318 | 136 | | 308 | 126 | |
| **Scallop No Action** | *Total Expected to be Caught, YTF Stock Area* | | | *Scallop Fishery ABC* | | | *Sub-ACL* | | |
| *Year* | *GB* | *SNEMA* | *CC/GOM* | *GB* | *SNEMA* | *CC/GOM* | *GB* | *SNEMA* | *CC/GOM* |
| 2011 | 38.0 | 95.1 | 23.4 | 34.2 | 85.6 | 21.1 | 33.2 | 79.6 | |
| 2012 | 36.9 | 66.1 | 21.6 | 33.2 | 59.5 | 19.4 | 32.2 | 55.3 | |
| 2013 | | | | | | | | | |
| **Scallop Scenario 1** | *Total Expected to be Caught, YTF Stock Area* | | | *Scallop Fishery ABC* | | | *Sub-ACL* | | |
| *Year* | *GB* | *SNEMA* | *CC/GOM* | *GB* | *SNEMA* | *CC/GOM* | *GB* | *SNEMA* | *CC/GOM* |
| 2011 | 175.3 | 57.6 | 23.6 | 157.8 | 51.8 | 21.2 | 153.0 | 48.2 | |
| 2012 | 341.8 | 83.7 | 20.1 | 307.6 | 75.3 | 18.1 | 298.4 | 70.1 | |
| 2013 | | | | | | | | | |
| **Scallop Scenario 2** | *Total Expected to be Caught, YTF Stock Area* | | | *Scallop Fishery ABC* | | | *Sub-ACL* | | |
| *Year* | *GB* | *SNEMA* | *CC/GOM* | *GB* | *SNEMA* | *CC/GOM* | *GB* | *SNEMA* | *CC/GOM* |
| 2011 | 50.3 | 57.6 | 25.0 | 45.3 | 51.8 | 22.5 | 43.9 | 48.2 | |
| 2012 | 291.6 | 103.4 | 19.8 | 262.4 | 93.1 | 17.8 | 254.6 | 86.5 | |
| 2013 | | | | | | | | | |
| **South Channel Closure** | *Total Expected to be Caught, YTF Stock Area* | | | *Scallop Fishery ABC* | | | *Sub-ACL* | | |
| *Year* | *GB* | *SNEMA* | *CC/GOM* | *GB* | *SNEMA* | *CC/GOM* | *GB* | *SNEMA* | *CC/GOM* |
| 2011 | 298.7 | 54.9 | 6.9 | 268.8 | 49.4 | 6.2 | 260.8 | 46.0 | |
| 2012 | 351.8 | 83.1 | 17.1 | 316.6 | 74.8 | 15.4 | 307.1 | 69.6 | |
| 2013 | | | | | | | | | |

## *4.2 Fishery Program Administration*

### 4.2.1 Implementation of Additional Sectors

**Option 1: No Action**

If No Action is adopted, the list of operating sectors will be limited to the nineteen that were authorized by Amendment 16. These include the Georges Bank Cod Hook Sector, Fixed Gear Sector, Sustainable Harvest Sector, Port Clyde Community Groundfish Sector, Tri-State Sector, and Northeast Fishery Sectors I-XIII.

**Option 2: Implement New Sectors for FY 2011**

The following list summarizes the new sector applications, and request for modifications to existing sectors, that were received for inclusion in Framework 45. Sectors that wish to begin operating in a given fishing year are required to submit proposals and operations plans one year prior to the beginning of that fishing year. The following sectors, if approved, will therefore commence operations on May 1, 2011.

State of Maine Permit Banking Sector (MPBS)

*Summary:* The MPBS will operate as a lease-only sector with no active fishing vessels in FY 2011.

State of Rhode Island Permit Bank Sector

*Summary*: This sector intends to operate as a lease-only sector, whose sole function would be to hold permits for the purpose of leasing out ACE. Rhode Island may join with other states in the formation and operation of this sector, depending on further evaluation of the benefits of a common sector for multiple permit banks.

*State of New Hampshire Permit Bank Sector*

*Summary: This will operate as a lease-only sector with no active fishing vessels in FY 2011.*

*State of Massachusetts Permit Bank Sector*

*Summary: This will operate as a lease-only sector with no active fishing vessels in FY 2011.*

Northeast Fisheries Sector XIV

*Summary*: This sector is designed to be comprised of inactive members. Its primary intent is to transfer ACE to and from other sectors. The sector will be comprised of active membership in the future if such action is deemed necessary.

Sustainable Harvest Sector II

*Summary:* This would be a sector comprised of active groundfish vessels, similar to the existing Sustainable Harvest Sector.

Sustainable Harvest Sector III

*Summary:* This sector would likely be comprised of members who choose to lease their groundfish allocation to other sectors. However, the ability to switch this sector to an active sector as well is requested.

### 4.2.2 Monitoring Requirements for Handgear A and Handgear B Permitted Vessels and Small Vessel Exemption Vessels

**Option 1: No Action**

Under this option there is no change to the requirements for dockside monitoring that were adopted in Amendment 16. Vessels using a Handgear A or B permit, or a Small Vessel Exemption permit, that join sectors are already required to comply with dockside monitoring requirements; vessels using such permits in the common pool would be required to comply with the dockside monitoring requirements beginning in 2012.

**Option 2: Dockside Monitoring exemption for Handgear A and Handgear B Permits and Small Vessel Exemption permits**

Vessels fishing under a Handgear A or Handgear B permit, or a Small Vessel Exemption permit, are exempted from the dockside monitoring requirements adopted by Amendment 16 when fishing in the common pool.

*Rationale:* These permit categories land small quantities of groundfish and the expense of the monitoring requirements would make them uneconomical.

### 4.2.3 Monitoring Requirements for Commercial Groundfish Fishing Vessels

**Option 1: No Action**

Under this option there are no changes to the monitoring requirements for commercial groundfish fishing vessels that were adopted in Amendment 16. The regulations require the use of dockside/roving monitoring to observe offloads by groundfish vessels (on twenty percent of trips beginning in FY 2011) to certify the accuracy of dealer reports. As detailed further by Amendment 16, this requirement applies to sector trips beginning in FY 2010, and common pool trips beginning in FY 2012. Furthermore, there is a requirement that the fishing industry would pay the costs of such monitoring, although NMFS has provided funding to date.

**Option 2: Removal of Dockside Monitoring Requirements**

There is no requirement for dockside monitoring of catches by commercial groundfish fishing vessels.

*Rationale*: Dockside monitoring was adopted by Amendment 16 to verify the accuracy of landings by commercial fishing vessels. The requirement was imposed immediately for vessels fishing in sectors and in FY 2012 for common pool vessels. Because this measure did not replace

dealer reporting or VTRs, it did not produce a new data stream that assists the assessment and management of the fishery. Eliminating the requirement will reduce monitoring costs, avoid duplication of effort, and will not reduce the availability of landings information.

**Option 3: Removal of Requirement for Industry Funding of At-Sea Monitoring for FY 2012**

There is no requirement for the industry to fund the costs of adequate at-sea monitoring of catches in FY 2012. This action delays by one year industry responsibility for those costs. Absent further action, industry will be responsible for the portion of these costs not funded by NMFS in FY 2013.

*Rationale:* Amendment 16 mandates that the industry will fund at-sea and dockside monitoring costs beginning in FY 2012. The Council is concerned that imposing these costs on the industry at that date will reduce profitability and result in making the sector system an economic failure. This action delays by one year industry responsibility for those costs. The Council may further modify this requirement in the future as more information becomes available on the appropriate monitoring levels, costs of those programs, and implementation of electronic monitoring systems.

**Option 4: Trip-end Hail Requirement**

Should dockside monitoring requirements be eliminated, commercial groundfish vessels subject to the VMS requirement (i.e., all sector vessels, and common pool vessels that fish under a groundfish DAS or in multiple broad stock areas on the same trip) will still be required to provide a trip-end hail report to NMFS via VMS prior to landing any groundfish trip. This report will be based upon the trip-end hail report requirements implemented under Amendment 16, and will include, but is not limited to, the following information: Vessel permit number; vessel trip report serial number, or other applicable trip ID specified by NMFS; landing state; landing port city; dealer name/offload location; estimated arrival date and time; estimated offload date and time; second offload port city and state (if applicable); and total amount of groundfish and non-groundfish species kept. NMFS will specify the content of these reports, including the fields that must be reported, and provide directions for reporting this information. To the extent possible, NMFS will reduce unnecessary duplication of the trip-end hail reports with any other applicable reporting requirements.

*Rationale*: The recent implementation of ACLs and the requirement for sector vessels to cease fishing operations once sector allocations are caught under Amendment 16 increases incentives to misreport or underreport landings of groundfish stocks. This option provides the data necessary to enable enforcement personnel to intercept vessels when offloading is expected to occur to help ensure that all groundfish landings are offloaded and recorded by a Federally-permitted dealer. Increasing the chances that a vessel will be subject to dockside inspection by enforcement personnel should increase compliance with applicable measures and will help ensure that groundfish landings are accurately monitored.

### 4.2.4 Distribution of PSC from Canceled Permits

***Option 1: No Action***

*If no action is selected, distribution of PSC from canceled permits will continue in the same manner it is currently performed. At this time, if a permit permanently exits the fishery, its associated PSC is assigned to the common pool. This is because the original calculations of PSC that were performed during the implementation of Amendment 16 have not been revisited, and no way to re-assign the PSC to other individual permits has been adopted.*

*PSC is calculated as a percentage history of all landings of a stock; in other words, the historic catch associated with a single permit, divided by all the historic catch of a stock. As determined by Amendment 16, the value of the historic catch (denominator) does not change, but is static. The implication of this fact is that when there are decreases in the number of current permits due to permanent permit cancellations, the relative percentage of fish allocated to sectors declines but the relative percentage of the allocation to the common pool increases.*

***Option 2: Even Redistribution Among All Remaining Permits***

*When permits are permanently canceled or surrendered, the PSC associated with such permits will be redistributed across all permits that remain in the fishery (whether fishing in the common pool or sectors). The following formula will apply to all remaining permits, where year 0 is the year in which calculations are performed and $PSC_{exited}$ is the total PSC that was attached to all permits leaving the fishery:*

$$PSC_{year\ 1} = PSC_{year\ 0} * (1 / 1 - PSC_{exited})$$

*This calculation will be performed on an annual basis for each stock at a date to be determined by NMFS*

*Rationale: PSC is calculated as a percentage history of all landings of a stock. If permits exit the fishery, their history becomes irrelevant and the remaining permits should reflect a relatively larger percentage of the landings history of existing permits. In the interest of fairness, this increase in percentage should apply to all surviving permits and not only those in one segment of the fishery, i.e. the common pool.*

### 4.2.5 Submission of Sector Rosters

**Option 1: No Action**

*There are no changes to current requirements that sectors must submit final sector rosters to NMFS by September 1 for the next fishing year. This requirement was adopted in Amendment 16.*

*Rationale: September 1 is the submission date for all sector documents. Specified in Amendment 16 at NMFS request, this date was selected to provide sufficient time for review of all sector documents so that authorization could be granted or a May 1 starting date for sector operations.*

**Option 2: Revised Submission Date**

*Sectors are required to submit final sector rosters to NMFS by December 1 in order to operate on May 1 of the following fishing year.*

*Rationale: Since adoption of Amendment 16, almost all permit holders with allocations have chosen to participate in sectors. NMFS has found this simplifies administration of the sector program and has adjusted sector roster submission dates several times to give the industry more flexibility in making sector decisions. This measure implements these changes on a permanent basis. Note that this measure does not change submission dates for other sector documents.*

## *4.3 Commercial and Recreational Fishery Measures*

### 4.3.1 General Category Scallop Dredge Exemption – Modification of Restrictions

**Option 1: No Action**

If no action is selected, the restrictions associated with the Great South Channel Scallop Dredge Exemption program will remain the same, including the seasonal closures within this exemption area. The yellowtail flounder spawning closures described in Option 2 will remain in effect.

**Option 2: Exemption from Yellowtail Flounder Spawning Closure**

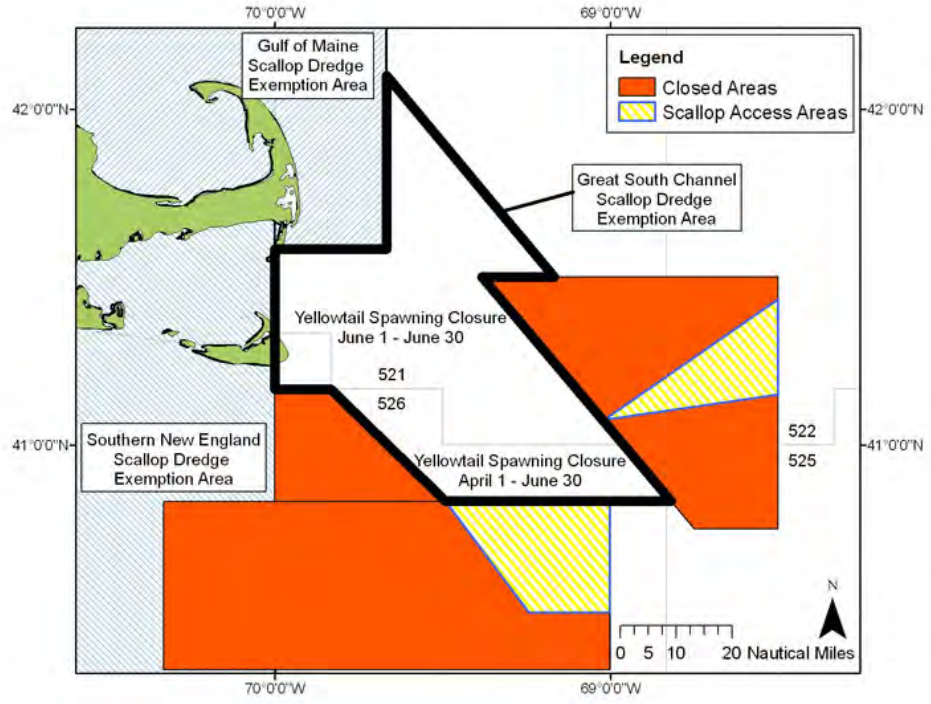
Under this alternative, vessels issued a General Category scallop permit will be exempt from the Great South Channel SNE/GB yellowtail flounder peak spawning closure, which occurs between April 1 and June 30 and is defined by the straight lines connecting the following points in the order stated below:

| *Point* | *N. Lat.* | *W. Long.* |
|---|---|---|
| YTA 1 | 41° 20’ | 70° 00 |
| YTA 2 | 41° 20’ | 69° 50’ |
| YTA 3 | 41° 10’ | 69° 50’ |
| YTA 4 | 41° 10’ | 69° 30’ |
| YTA 5 | 41° 00’ | 69° 30’ |
| YTA 6 | 41° 00’ | 68° 57.58’ |
| YTA 7 | 40° 50’ | 68° 49.20’ |
| YTA 8 | 40° 50’ | 69° 29.46’ |
| YTA 9 | 41° 10’ | 69° 50’ |
| YTA 10 | 41° 10’ | 70° 00’ |
| YTA 11 | Intersection of south-facing coastline of Nantucket, MA | 70° 00’ |

The exemption will also apply to the Great South Channel CC/GOM yellowtail flounder peak spawning closure, which occurs between June 1 and June 30 and is defined by the straight lines connecting the following points in the order stated below:

| *Point* | *N. Lat.* | *W. Long.* |
|---|---|---|
| YTB 1 | 41° 33.05’ | 70° 00 |
| YTB 2 | 41° 20’ | 70° 00’ |
| YTB 3 | 41° 20’ | 69° 50’ |
| YTB 4 | 41° 10’ | 69° 50’ |
| YTB 5 | 41° 10’ | 69° 30’ |
| YTB 6 | 41° 00’ | 69° 30’ |
| YTB 7 | 41° 00’ | 68° 57.58’ |
| YTB 8 | 41° 30’ | 69° 23’ |
| YTB 9 | 41° 30’ | 69° 10’ |
| YTB 10 | 42° 06’ | 69° 40’ |
| YTB 11 | 41° 35’ | 69° 40’ |
| YTB 12 | 41° 35’ | 70° 00’ |

**Figure 1 – General Category scallop fishery yellowtail flounder spawning closure areas (NERO graphic)**




*Rationale*: When the spawning closures were adopted, there were no hard limits to the amount of scallops that could be harvested in the area. Now that the General Category scallop fishery is operating under Individual Transferable Quotas, the main justification for the closure is moot. Furthermore, there is little solid evidence that scallop dredging interferes with yellowtail spawning.

### 4.3.2 Gulf of Maine Cod Spawning Protection Area

**Option 1: No Action**

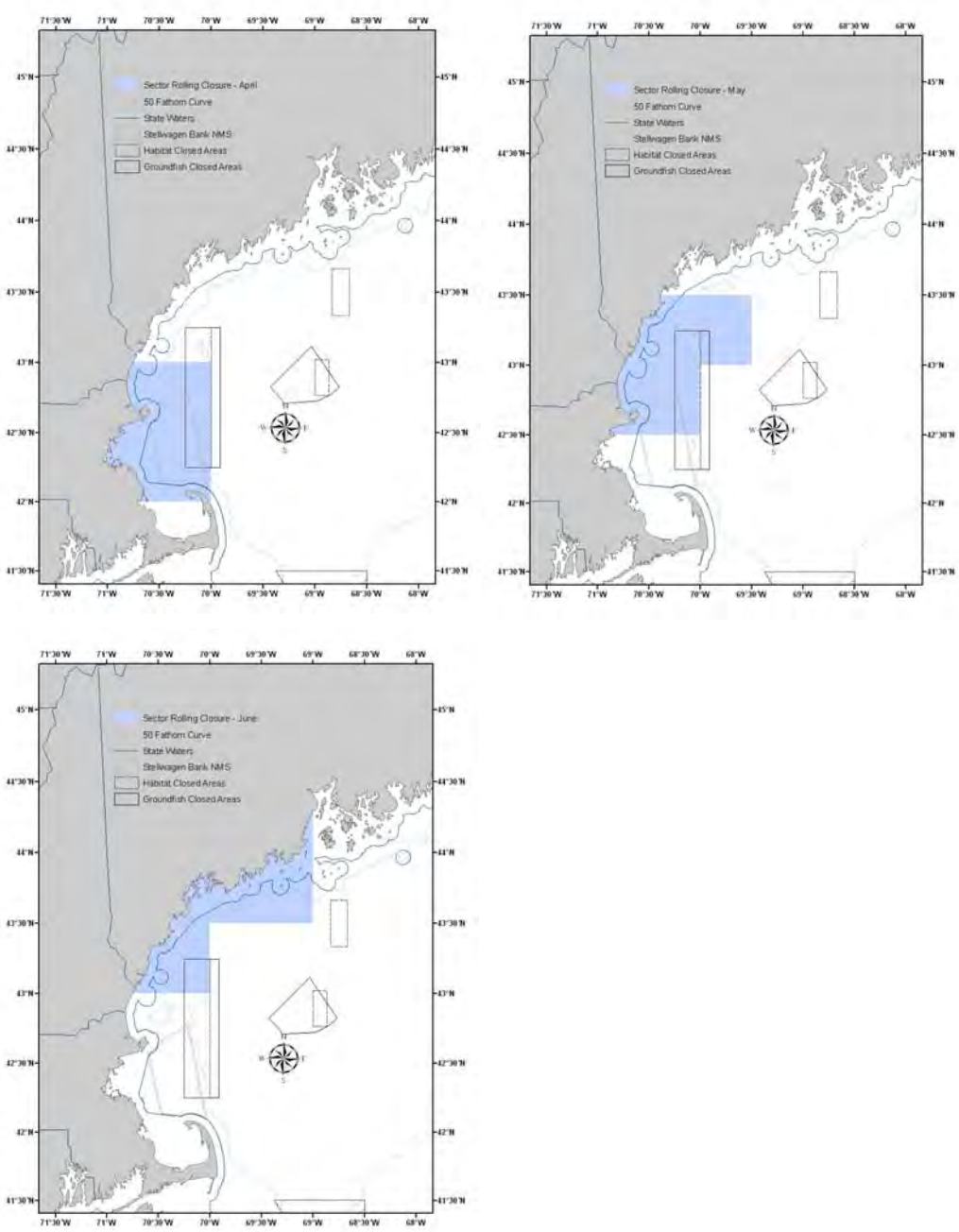
There are no changes to management measures as implemented under Amendment 16. Recreational vessels are allowed to fish in GOM rolling closure areas and sector vessels are allowed to fish in the modified rolling closures.

With respect to the recreational fishery, the measures adopted by Amendment 16 include a minimum fish size for GOM cod, a bag limit, and a seasonal prohibition on possession of GOM cod (November 1 – April 15).

For the commercial fishery, there are separate measures for sector vessels and vessels not in sectors. Fishing activity is constrained by quotas for a group of allocated stocks. Sectors are responsible for monitoring their catches and staying within their quotas but are granted latitude to be exempted from numerous other regulations. One of the universal exemptions for all sectors allows fishing during some of the rolling closures in the Gulf of Maine. The areas that remain closed to sector vessels listed below and are shown in Figure 2.

- April: Blocks 124, 125, 132, 133
- May: Blocks 132, 133, 138, 139, 140
- June: 139, 140, 145, 146, 147, 152

**Figure 2 – GOM rolling closures for which sectors do not receive an automatic exemption (as implemented)**




There is an extensive suite of effort controls for vessels not in sectors. These measures include a trip limit, DAS restrictions, gear requirements, and rolling closures. The principle components of the program are summarized below. FW 44 also granted the Regional Administrator the authority to modify DAS counting and trip limits in order to control catches.

Trip Limits:

The trip limits in Table 11 were implemented for fishing on a Category A DAS, while all other trip limits while fishing on a Category A DAS were eliminated. For GB and GOM cod, Handgear A permits are allowed a 300-lb. per trip landing limit, while Handgear B permits are allowed 75 lbs. per trip.

**Table 11 – No Action trip limits for common pool vessels (table does not reflect in-season adjustments or changes resulting from imposition of AMs)**

| Stock | Amendment 16/FW 44 |
|---|---|
| GOM Cod | GOM: 800 lbs/DAS, 4,000 lbs/trip; GB: 2,000 lbs./DAS; maximum 20,000 lbs/trip; with the exception of the Eastern U.S./Canada area, where the Regional Administrator will specify the appropriate trip limit at the beginning of the fishing year (the default trip limit for this area remains 500 lbs./DAS, up to a maximum of 5,000 lbs./trip). |
| GB Cod | |
| CCGOM Yellowtail Flounder | 250 lbs./ DAS up to a maximum of 1,500 lbs./trip |
| SNE/MA Yellowtail Flounder | 250 lbs./ DAS up to a maximum of 1,500 lbs./trip |
| SNE/MA Winter Flounder | 0 |
| Windowpane Flounder | 0 |
| Atlantic Halibut | One fish/trip |
| Ocean Pout | 0 |
| Atlantic Wolffish | 0 |
| Pollock | 1,000 lbs./DAS, 10,000 lbs./trip |

Restricted Gear Areas:

Two restricted gear areas were established in Amendment 16 (Figure 3). Vessels fishing under a groundfish DAS are required to comply with the gear requirements for these areas.

*Administration*: Vessel operators must comply with the following administrative requirements to fish in these areas:

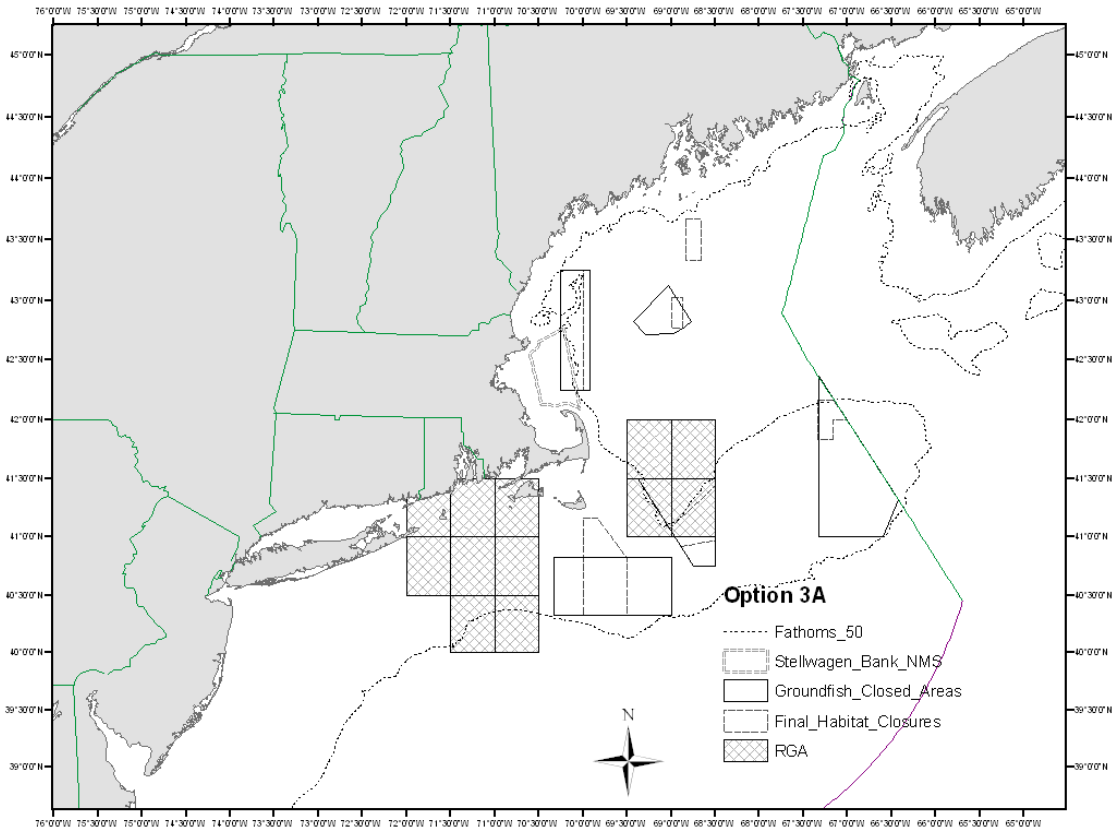
- As specified by the Regional Administrator, vessel operators must either request a Letter of Authorization (LOA) from NMFS or must make a specific VMS declaration to fish in the areas. The minimum participation period if an LOA is required is seven days.
- A vessel can fish inside and outside the area on the same trip, but is subject to the most restrictive measures (gear, trip limits, etc.) for the entire trip.
- Existing gear performance standards apply to gear used in these areas. Gillnets with large mesh that are allowed in the area are allowed to retain monkfish subject to monkfish possession limits and not the gear performance standards.
- Other gear is not allowed on board when operating in these areas.
- Additional gear (such as the five-point trawl, raised footrope trawl, or tie-down sink gillnets with mesh less than ten inches) may be considered for use in this area if approved by the Regional Administrator consistent with the regulations for approving additional gear in special management programs.

*Areas*: The areas are defined as:

*Western GB Multispecies RGA*:
42-00N 69-30W
42-00N 68-30W
41-00N 68-30W
41-00N 69-30W

*Southern New England Multispecies RGA*:
41-30N 70-30W
40-00N 70-30W
40-00N 71-30W
40-30N 71-30W
40-30N 72-00W
North to the Connecticut shoreline at 72-00W
East along the shoreline to 41-30N

**Figure 3 –Restricted gear areas adopted in Amendment 16**



Gear restrictions include the following authorized gears:

*Trawl Gear*: Trawl vessels fishing under a groundfish DAS must use a haddock separator trawl, eliminator trawl, or the rope trawl. The haddock separator trawl and Ruhle trawl are described in existing regulations.

*Rope trawl*: The design includes a four-panel structure to increase headline height and large mesh in the front part of the trawl. The separator panel is made from a series of parallel ropes of different lengths. The panel is one-third from the fishing line in the vertical plane. There is a large escape opening in the bottom of the trawl. Additional details will be clarified by NMFS in the proposed rule and final regulations.

*Sink gillnets*: No tiedown nets allowed using mesh less than ten inches. Stand-up gillnets are allowed with legal size mesh.

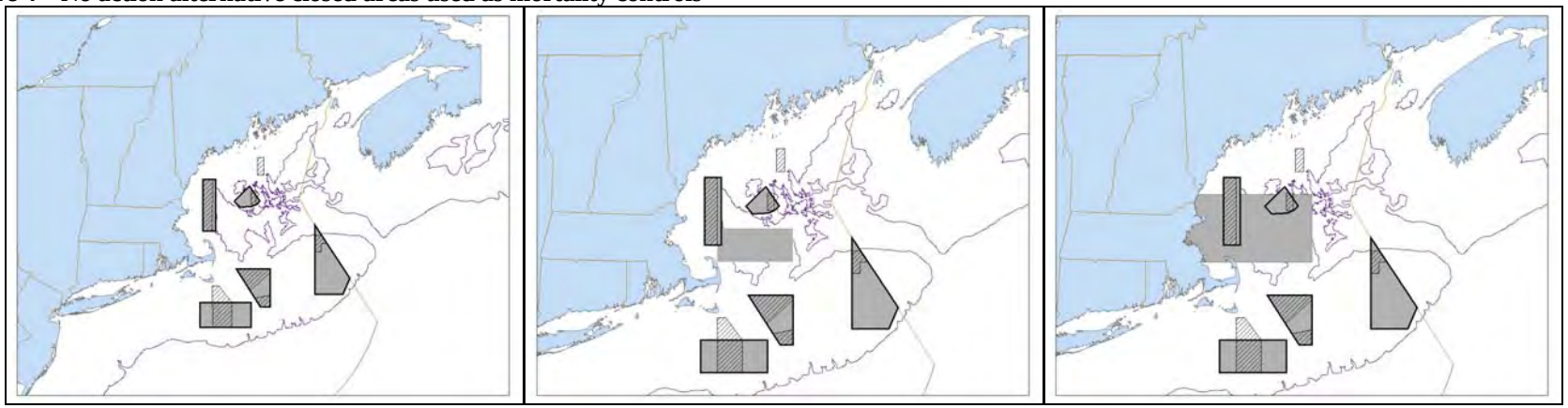
*Longline/tub trawls*

*Handgear*

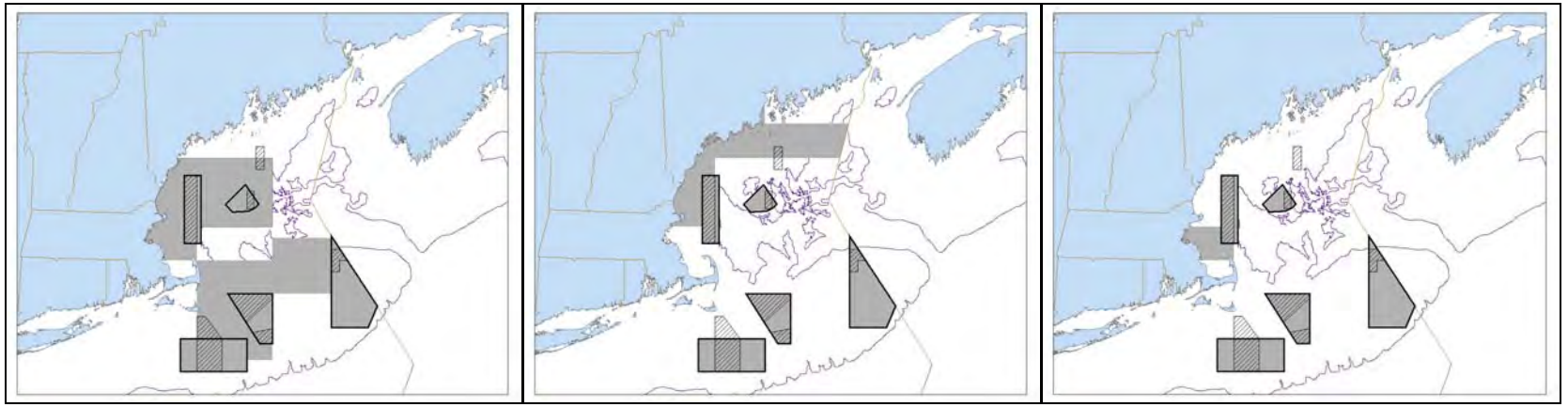
**Table 12 – Gear restrictions under No Action alternative**

| | GOM | GB | SNE | Mid-Atl |
|---|---|---|---|---|
| **MINIMUM MESH SIZE RESTRICTIONS FOR GILLNET GEAR** | | | | |
| NE Multispecies Day Gillnet Category* | Roundfish nets<br>6.5" (16.5 cm) mesh; 50-net allowance | All nets<br>6.5" (16.5 cm) mesh; 50-net allowance | All nets<br>6.5" (16.5 cm) mesh; 75-net allowance | Roundfish nets<br>6.5" (16.5 cm) mesh; 75-net allowance |
| | Flatfish nets<br>6.5" (16.5 cm) mesh; 100-net allowance | | | Flatfish nets<br>6.5" (16.5 cm) mesh; 75-net allowance |
| NE Multispecies Trip Gillnet Category* | All nets<br>6.5" (16.5 cm) mesh; 150-net allowance | All nets<br>6.5" (16.5 cm) mesh; 150-net allowance | All nets<br>6.5" (16.5 cm) mesh; 75-net allowance | All gillnet gear<br>6.5" (16.5 cm) mesh; 75-net allowance |
| Monkfish Vessels** | 10" (25.4 cm) mesh/150-net allowance | | | |
| | | | | |
| **MINIMUM MESH SIZE RESTRICTIONS FOR TRAWL GEAR** | | | | |
| Codend only mesh size* | 6.5" (16.5 cm) diamond or square | | 7.0" (17.8 cm) diamond or 6.5" (16.5 cm) square | 6.5" (16.5 cm) diamond or square |
| Large Mesh Category - entire net | 8.5" (21.59 cm) diamond or square | | | 7.5" (19.0 cm) diamond or 8.0" (20.3 cm) square |
| **MAXIUM NUMBER OF HOOKS AND SIZE RESTRICTIONS FOR HOOK-GEAR*** ** | | | | |
| Limited access multispecies vessels | 2,000 hooks | 3,600 hooks | 2,000 hooks | 4,500 hooks (Hook-gear vessels only) |
| | No less than 6" (15.2 cm) spacing allowed between the fairlead rollers | | | |
| | 12/0 circle hooks required for longline gear | | | N/A |

**Figure 4 – No action alternative closed areas used as mortality controls**



Year Round | March | April



May | June | October/November

Closed Areas:

Amendment 16 did not authorize additional closed areas. However, closures in place prior to its adoption remain in effect (Figure 4).

In-Season Adjustments to Mortality Control Measures:

The Regional Administrator has the authority to impose trip limits as necessary under the provisions implementing the U.S./Canada Resource Sharing Understanding. Under those regulations, the Regional Administrator specifies the trip limit for GB yellowtail flounder. In all cases, only one landing limit can be landed in any twenty-four hour period. If a vessel fishes in more than one area, the most restrictive trip limit for a species applies for the entire trip.

The RA does not have the authority to modify effort control measures in other areas absent Council action. The only exception lies in the administration of accountability measures including post-season differential DAS adjustments for FY 2010 and 2011 and the hard TAC AM in FY 2012.

**Option 2: GOM Cod Spawning Protection Measures**

An area is proposed for the GOM in order to protect spawning aggregations of GOM cod. The area is intended to provide protection to spawning cod by limiting fishing at times and areas when catch rates are high, by reducing targeting of large repeat spawners, and by preventing fishing from interfering with spawning activity.

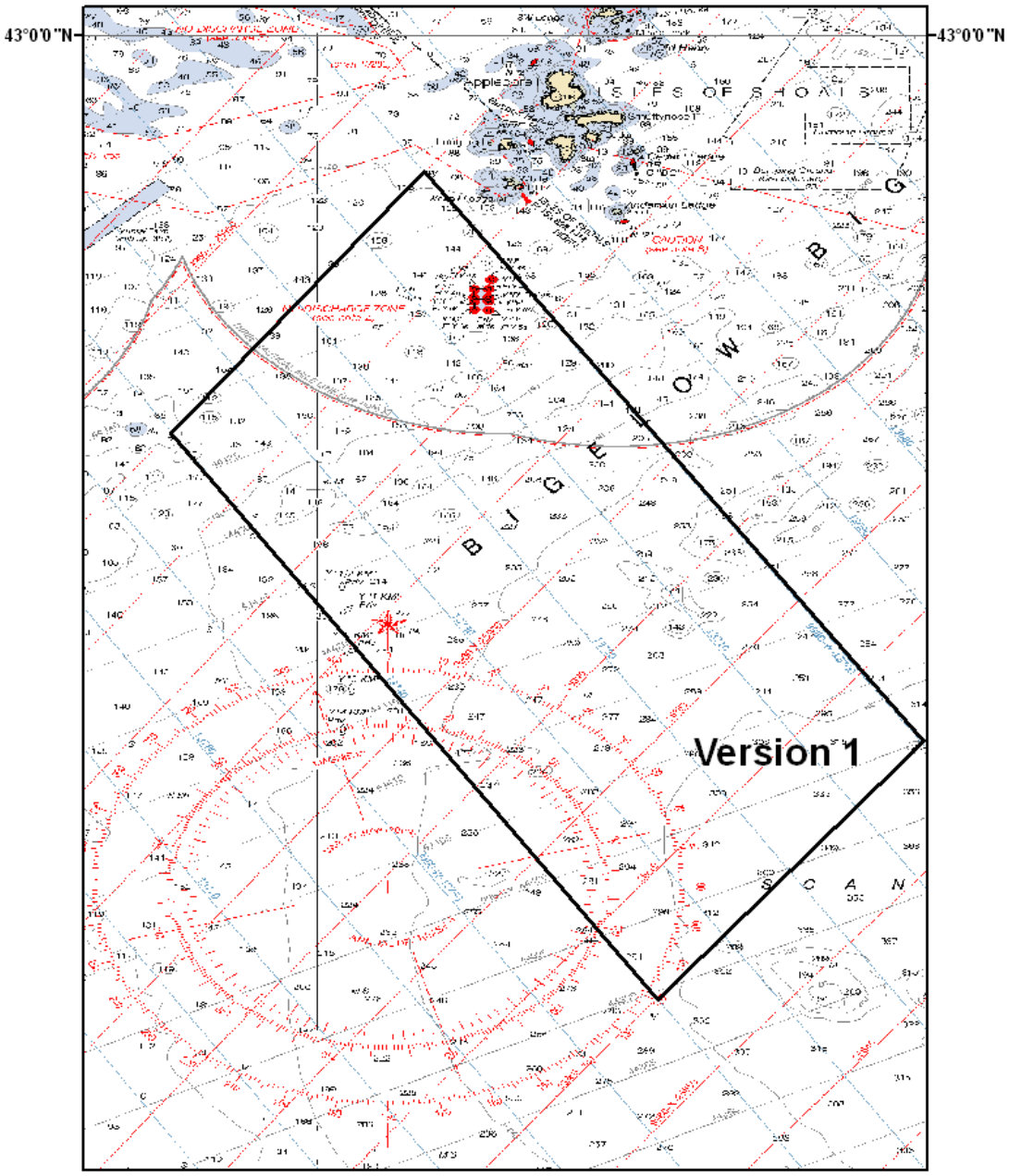
The proposed closure area is defined by the following coordinates and illustrated in Figure 5.

| | |
|---|---|
| 42-50.95 N | 70-32.22 W |
| 42-47.65 N | 70-35.64 W |
| 42-54.91 N | 70-41.88 W |
| 42-58.27 N | 70-38.64 W |

Provisions that apply to the area are:

- All commercial fishing vessels using gear capable of catching groundfish are prohibited from fishing in the area from June 1 through June 30. Only fishing with exempted gear is allowed in the area.
- Recreational fishing vessels (including party-charter vessels) are subject to the following restrictions:
    - Sub-Option A: Recreational vessels are prohibited from fishing in the area from April through June.
- A fishing vessel (commercial or recreational) may transit the area as long as gear is properly stowed in accordance with regulations promulgated by the Regional Administrator.

Figure 5 – Proposed GOM cod spawning protection area



### 4.3.3 Handgear Permit Management Measures

**Option 1: No Action**

No changes will be made to the regulations for vessels fishing with Handgear A or Handgear B permit vessels. Handgear A vessels would continue to be limited to a trip limit of 300 lbs./trip for cod. This amount adjusts proportionally to any changes to the GOM cod trip limit for limited access vessels as described in 50 CFR 648.82(b)(6). Handgear B vessels would continue to be limited to a trip limit of 75 lbs./trip. This amount adjusts proportionally to any changes to the GOM cod trip limit for limited access vessels as described in 50 CFR 648.88(a)(1).

Vessels fishing with Handgear A permits and not in a sector would continue to be subject to all rolling closures that apply to common pool vessels.

**Option 2: Rolling/Seasonal Closure Exemption for Handgear A Vessels**

*Handgear A vessels are exempt from all GOM rolling closures implemented by Amendment 13.*

*Handgear A vessels are exempt from the GB seasonal closure.*

*Access to future closed areas (such as the GOM cod spawning protection area in section 4.3.2) will be determined when the particular measure is adopted. Handgear A vessel access to new closures will be the same as for other commercial vessels unless Handgear A access is explicitly authorized. Handgear A vessels that are in the common pool will be subject to the same rules as other common pool vessels unless a specific exception is made. Handgear A vessels in sectors will be subject to the same rules as other sector vessels unless a specific exception is made.*

*Rationale: Handgear A vessels are constrained by a trip limit that adjusts proportionally to changes made to the trip limit for limited access, common pool vessels. Given the ability of the Regional Administrator to adjust trip limits in season if necessary to prevent the ACL from being exceeded, the Handgear A vessels are competing in a derby with the limited access vessels. As a result, the experience in FY 2010 was that the trip limit was adjusted downward rapidly and at the low levels the Handgear A fishery was not economically viable. This measure provides Handgear A vessels an opportunity to fish at their trip limit early in the year in the rolling closure areas, giving them more of an opportunity to be profitable.*

**Option 3: Partial Rolling Closure Exemption for Handgear A Vessels**

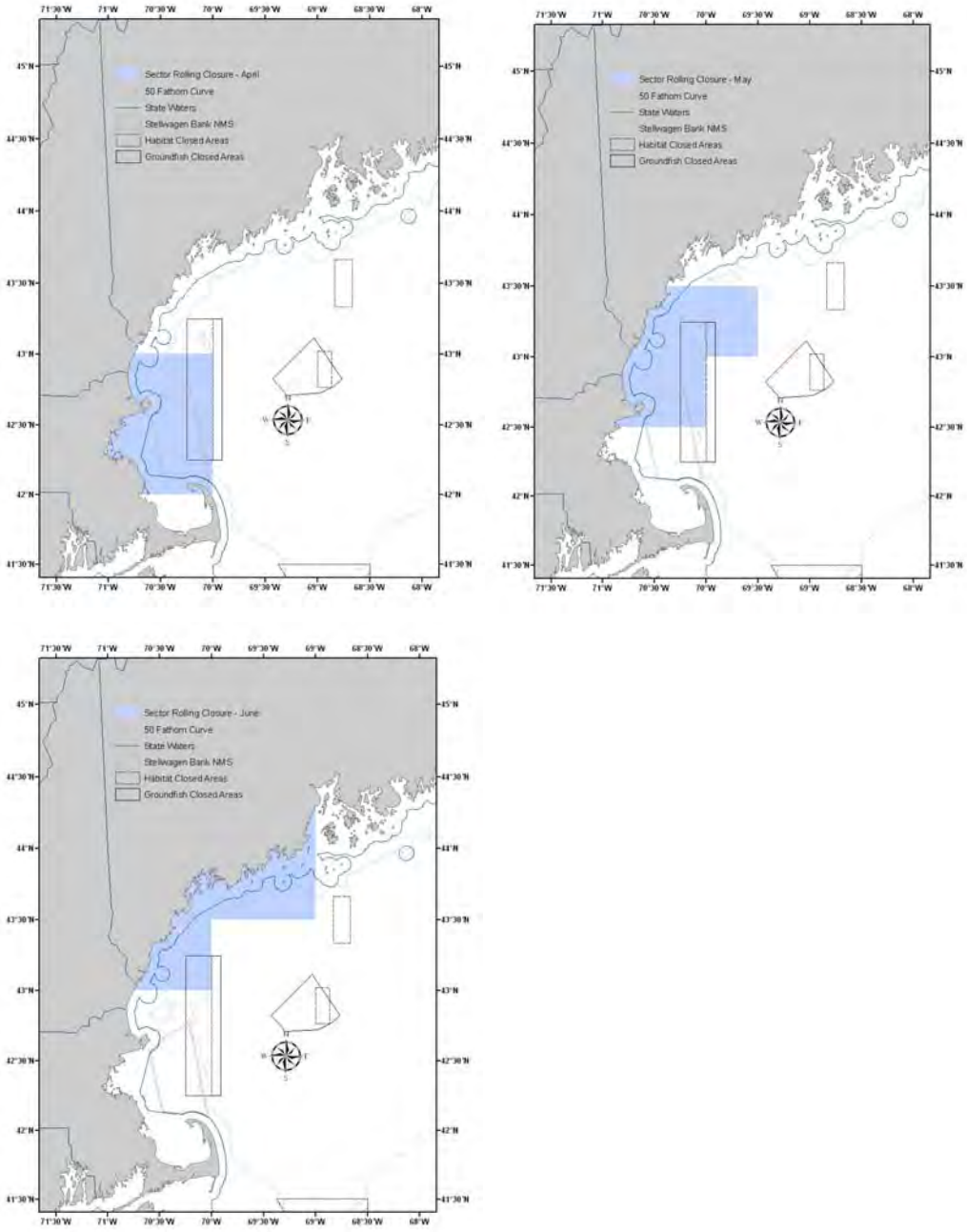
*Handgear A vessels are exempt from the same GOM rolling closures as the universal exemption for sector vessels. The areas and months that remain closed to Handgear A vessels are shown in* Figure 6. *Access to future closed areas (such as the GOM cod spawning protection area in 4.3.2) will be determined when the measure is adopted; Handgear A vessel access to these areas will be the same as for other commercial vessels unless Handgear A access is explicitly authorized.*

The areas that remain closed to Handgear A vessels are listed below and are shown in Figure 6.

- April: Blocks 124, 125, 132, 133

- May: Blocks 132, 133, 138, 139, 140
- June: 139, 140, 145, 146, 147, 152

**Figure 6 – GOM rolling closures for which sectors do not receive an automatic exemption (as implemented)**




*Rationale: Handgear A vessels are constrained by a trip limit that adjusts proportionally to changes made to the trip limit for limited access, common pool vessels. Given the ability of the*

*Regional Administrator to adjust trip limits in season if necessary to prevent the ACL from being exceeded, the Handgear A vessels are competing in a derby with the limited access vessels. As a result, the experience in FY 2010 was that the trip limit was adjusted downward rapidly and at the low levels the Handgear A fishery was not economically viable. This measure provides Handgear A vessels an opportunity to fish at their trip limit early in the year in the same areas as sector vessels.*

**Option 4: Handgear A Trip Limit Modification**

*The cod trip limit for vessels fishing under a Handgear A permit will adjust proportionally to the cod trip limit for cod in the relevant stock area that applies to limited access DAS vessels fishing in the common pool. The baseline Handgear A trip limit is 300 lbs./trip, limited to one trip per day. The baseline cod trip limit for limited access vessels fishing in the GOM is that adopted by FW 44 (800 lbs./DAS). For limited access vessels fishing in the GB stock area, the baseline cod trip limit is as adopted in Amendment 16 (2,000 lbs/DAS). As an example, under this measure if the GOM cod trip limit is reduced by 50 percent for limited access vessels, the Handgear A trip limit is reduced by 50 percent for vessels fishing in the GOM, but no change is made to the trip limit for Handgear A vessels fishing on GB.*

*NMFS may adopt administrative measures necessary to implement this measure, such as requiring Handgear A vessels to obtain a letter of authorization to fish in defined stock areas.*

*Rationale: Current regulations adjust the Handgear A cod trip limit based on changes to the GOM cod trip limit. As a result, fishing opportunities for Handgear A permit holders on GB are affected by what takes place in the GOM. This measure corrects this inequity.*

**Option 5: Handgear B Trip Limit Modification**

*The cod trip limit for vessels fishing under a Handgear B will adjust proportionally to the cod trip limit for cod in the relevant stock area that applies to limited access DAS vessels fishing in the common pool. The baseline Handgear A trip limit is 75 lbs./trip, limited to one trip per day. The baseline cod trip limit for limited access vessels fishing in the GOM is that adopted by FW 44 (800 lbs./DAS). For limited access vessels fishing in the GB stock area, the baseline cod trip limit is as adopted in Amendment 16 (2,000 lbs/DAS). As an example, under this measure if the GOM cod trip limit is reduced by 50 percent for limited access vessels, the Handgear B trip limit is reduced by 50 percent for vessels fishing in the GOM, but no change is made to the trip limit for Handgear A vessels fishing on GB.*

*NMFS may adopt administrative measures necessary to implement this measure, such as requiring Handgear A vessels to obtain a letter of authorization to fish in defined stock areas.*

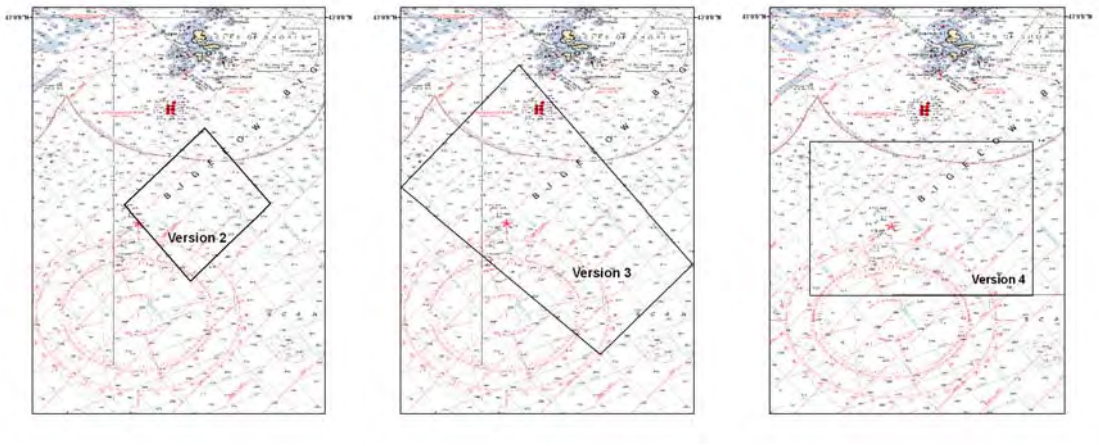
*Rationale: Current regulations adjust the Handgear B cod trip limit based on changes to the GOM cod trip limit. As a result, fishing opportunities for Handgear B permit holders on GB are affected by what takes place in the GOM. This measure corrects this inequity.*

# 5.0 Alternatives Considered and Rejected

## *5.1 GOM Cod Spawning Protection Area*

The Council considered three alternatives to the proposed area but did not select them for further analysis.

**Figure 7 – Rejected candidate areas for the GOM cod spawning protection area**




The Council considered allowing recreational vessels to fish in the proposed area, but they would be prohibited from possessing cod in the area from April through June. This measure was rejected because of concerns it would complicate enforcement and make the overall measure ineffective.

## *5.2 State-Operated Permit Banks*

**Option 1: No Action**

No changes are made to the FMP to facilitate the operation of state-operated permit banks. If states own groundfish permits, they must enroll them in a sector in order to use them to acquire ACE for the sector. If not enrolled in a sector, the DAS may be leased to vessels fishing in the common pool.

**Option 2: Authorization for State Operated Permit Banks**

A state-operated permit bank sponsored by NOAA shall be considered a Sector for the exclusive purpose of transferring ACE to qualifying Sectors. Such permit banks will be allocated ACE for a fishing year based on the PSCs of permits owned by the permit bank that are declared as ACE permits for that fishing year. All or a portion of a permit bank's ACE for any NE multispecies stock may be transferred to a qualifying Sector at any time during the fishing year. Permit banks may only act as the transferor in an ACE transfer.

*Rationale*: Funding has been provided to several states to acquire groundfish permits in order to use the Potential Sector Contribution (PSC) attached to those permits to mitigate adverse effects of sector management. This measure was intended to facilitate state-operated permit banks transferring that PSC to existing sectors without requiring the states to either form a sector or enroll the permits in an existing sector. This would have exempted these permit banks from sector requirements on owners, reporting and record-keeping requirements, etc. While considering this measure, the NEFMC received advice from NOAA General Counsel staff that this type of action could not be instituted in a framework document. The NEFMC expressed its intent to pursue this option in a forthcoming amendment to the FMP.

## *5.3 Revised Handgear A Trip Limits*

The trip limit for vessels fishing for cod using a Handgear A permit will be 300 lbs./trip at the start of the fishing year. Handgear A vessels fishing for GOM cod will not have the trip limit changed proportional to the GOM cod trip limit for common pool limited access vessels. For vessels fishing for GOM cod, the trip limit will change to 0 pounds per trip for the remainder if the fishing year when Handgear A permits have caught (kept and discarded) an amount of GOM cod that is equal to the groundfish GOM cod commercial ACL multiplied by the total GOM cod PSC for Handgear A permits in the common pool. Note that under this measure, Handgear A trip limits in the GOM do not increase if the limited access trip limit for GOM cod increases.

For Handgear A vessels fishing for GB cod, there is no change to the trip limit adjustment (increase or decrease) that is proportional to the GOM cod trip limit adjustment made for common pool limited access vessels.

*Rationale*: This measure was considered but rejected after NOAA General Counsel stated this measure allocated GOM cod to the Handgear A permit category and thus could not be adopted via a framework action.

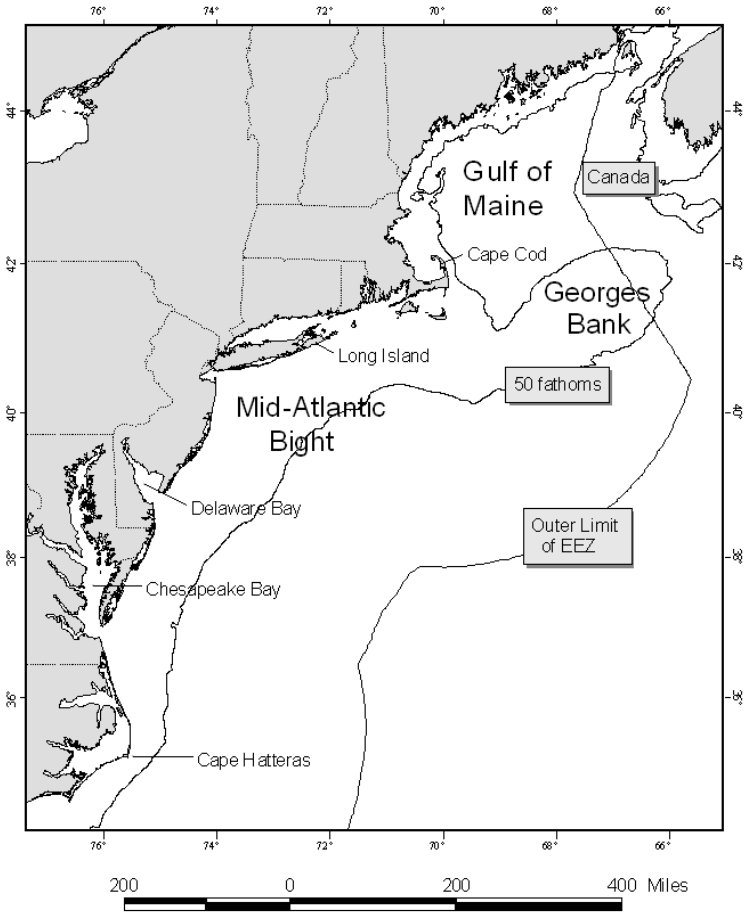
# 6.0 Affected Environment

The Valued Ecosystem Components (VECs) affected by the Proposed Action include the physical environment, Essential Fish Habitat (EFH), target species, non-target species/bycatch, protected resources, and human communities, which are described below.

## *6.1 Physical Environment/Habitat/EFH*

The Northeast U.S. Shelf Ecosystem (Figure 8) has been described as including the area from the Gulf of Maine south to Cape Hatteras, North Carolina, extending from the coast seaward to the edge of the continental shelf, including offshore to the Gulf Stream (Sherman et al. 1996). The continental slope includes the area east of the shelf, out to a depth of 2,000 meters (m). Four distinct sub-regions comprise the NOAA Fisheries Northeast Region: the Gulf of Maine, Georges Bank, the southern New England/Mid-Atlantic region, and the continental slope. Since the groundfish fleet will primarily be fishing in the inshore and offshore waters of the Gulf of Maine, Georges Bank, and the southern New England/Mid-Atlantic areas, the description of the physical and biological environment is focused on these sub-regions. Information on the affected environment was extracted from Stevenson et al. (2004).

**Figure 8 – Northeast U.S. Shelf Ecosystem**

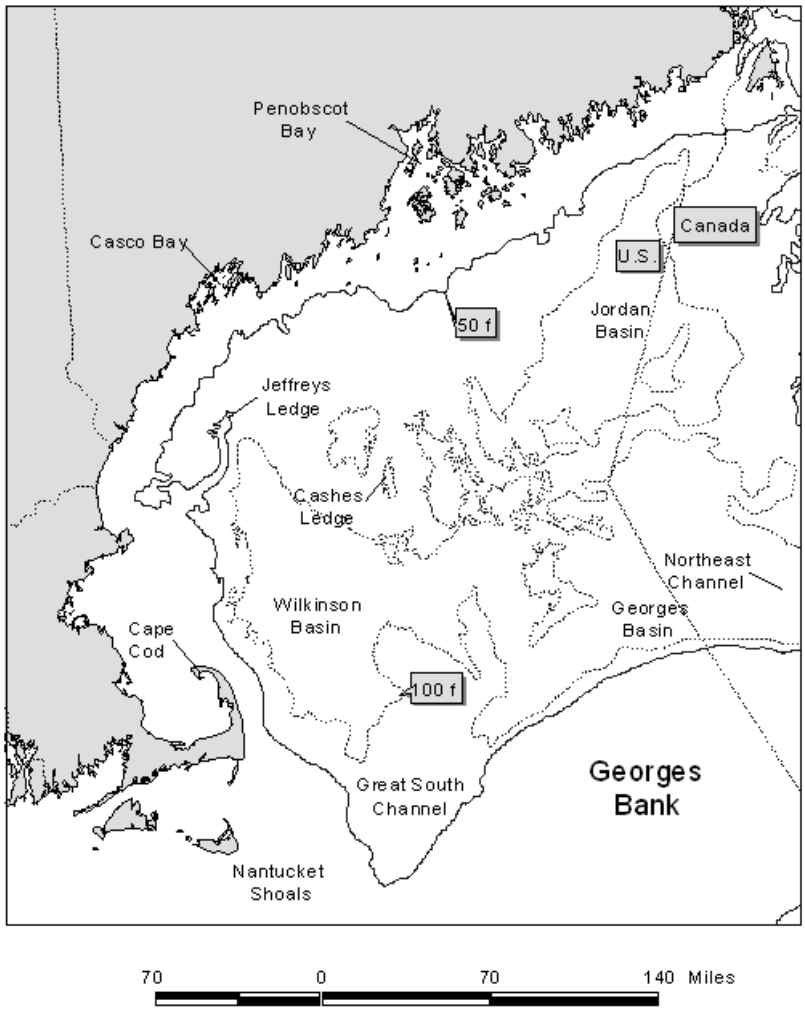


## 6.1.1 Affected Physical Environment

### 6.1.1.1 Gulf of Maine

The Gulf of Maine is an enclosed coastal sea, 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 9). The Gulf of Maine is a boreal environment and is 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 250 m, with a maximum depth of 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 9 m below the surface.

**Figure 9 – Gulf 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,[1] 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 depth of about 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 20 to 40 m, except off eastern Maine where a gravel-covered plain exists to depths of at least 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.

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. Biomass was dominated by bivalves, sea cucumbers, sand dollars, annelids, and sea anemones. Watling (1998) identified seven different bottom assemblages that occur on the following habitat types:

Sandy offshore banks: fauna are characteristically sand dwellers with an abundant interstitial component;

Rocky offshore ledges: fauna are predominantly sponges, tunicates, bryozoans, hydroids, and other hard bottom dwellers;

Shallow (< 60 m) temperate bottoms with mixed substrate: fauna population is rich and diverse, primarily comprised of polychaetes and crustaceans;

Primarily fine muds at depths of 60 to 140 m within cold Gulf of Maine Intermediate Water[2]: fauna are dominated by polychaetes, shrimp, and cerianthid anemones;

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;

Deep basin, muddy bottom, overlaying water usually 7 to 8°C: fauna densities are not high, dominated by brittle stars and sea pens, and sporadically by a tube-making amphipods; and

[1] 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.

[2] 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.

Upper slope, mixed sediment of either fine muds or mixture of mud and gravel, water temperatures always greater than 8°C: upper slope fauna extending into the Northeast Channel.

Two studies (Gabriel 1992, Overholtz and Tyler 1985) reported common[3] 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.

#### 6.1.1.2 Georges Bank

Georges Bank is a shallow (3 to 150 m depth), elongate (161 kilometer [km] wide by 322 km long) extension of the continental shelf that was formed during the Wisconsinian glacial episode (Figure 8). It is characterized by a steep slope on its northern edge and a broad, flat, gently sloping southern flank and has steep submarine canyons on its eastern and southeastern edges. It is characterized by 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. It is anticipated that erosion and reworking of sediments by the action of rising sea level as well as tidal and storm currents reduces the amount of sand and cause an overall coarsening of the bottom sediments (Valentine and Lough 1991).

Bottom topography on eastern Georges Bank is characterized by 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 is characterized by 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 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 water masses of the Gulf of Maine and Georges Bank from oceanic waters south of Georges Bank. These water masses differ in temperature, salinity,

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

nutrient concentration, and planktonic communities, which influence productivity and may influence fish abundance and distribution.

Georges Bank has been historically characterized by 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, and overall biomass was dominated by sand dollars and bivalves (Theroux and Wigley 1998). Using the same database, four macrobenthic invertebrate assemblages that occur on similar habitat type were identified (Theroux and Grosslein 1987):

The Western Basin assemblage is found in comparatively deepwater (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.

The Northeast Peak assemblage is found in variable depth 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.

The Central Georges Bank assemblage occupies the greatest area, including the central and northern portions of Georges Bank in depths less than 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.

The Southern Georges Bank assemblage is found on the southern and southwestern flanks at depths from 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.

As stated in Section 6.2.3, 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.

#### 6.1.1.3 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 8). The northern portion of the Mid-Atlantic Bight is sometimes referred to as southern New England and generally includes the area of the continental shelf south of Cape Cod from the Great South Channel to Hudson Canyon. The Mid-Atlantic Bight is comprised 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 100 and 200 km offshore where it transforms to the slope (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, the topography of the Mid-Atlantic Bight was shaped largely by sea level fluctuations during past ice ages. 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. On the slope, silty sand, silt, and clay predominate. Permanent sand ridges occur in groups with heights of about 10 m, lengths of 10 to 50 km and spacing of 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 2 m, lengths of 50 to 100 m, and 1 to 2 km between patches. The sand waves are usually found on the inner shelf and are temporary features that form and re-form in different locations, 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 significant Mid-Atlantic Bight habitat, 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 attracted 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 are comprised of either exposed rock, wrecks, kelp, or other hard material, and these are generally dominated by boring mollusks, algae, sponges, anemones, hydroids, and coral. 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 are generally comprised 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.

The benthic inhabitants of this primarily sandy environment are dominated in terms of numbers by amphipod crustaceans and bivalve mollusks. Biomass is dominated by mollusks (70 percent) (Theroux and Wigley 1998). Pratt (1973) identified three broad faunal zones related to water depth and sediment type:

> 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 50 m.
>
> 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.
>
> Silts and clays become predominant at the shelf break and line the Hudson Shelf Valley supporting the “silt-clay fauna.”

Rather than substrate as in the Gulf of Maine and Georges Bank, latitude and water depth are considered to be the primary factors influencing demersal fish species distribution in the Mid-

Atlantic Bight area. The following assemblages were identified by Colvocoresses and Musick (1984) in the Mid-Atlantic subregion during spring and fall.[4]

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.

### 6.1.2 Habitat

Habitats provide living things with the basic life requirements of nourishment and shelter, ultimately providing for both individual and population growth. The fishery resources of a region are influenced by the quantity and quality of available habitat. Depth, temperature, substrate, circulation, salinity, light, dissolved oxygen, and nutrient supply are important parameters of a given habitat which, in turn, determine the type and level of resource population that the habitat supports. Table 13 briefly summarizes the habitat requirements for each of the 12 groundfish species managed by the Northeast Multispecies (large-mesh) FMP, some of which consist of multiple stocks within the Northeast Multispecies FMP. Information for this table was extracted from the original FMP and profiles available from NMFS (Clark 1998). Essential fish habitat information for egg, juvenile and adult life stages for these species was compiled from Stevenson et al. 2004 (Table 13). 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 13.

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

**Table 13 - 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): 25-75 m (82-245 ft) | (J): Cobble or gravel bottom substrates | Otter trawl, longlines, gillnets |
| | | | (A): 10-150 m (33-492 ft) | (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): 35-100 m (115–28 ft) | (J): Pebble and gravel bottom substrates | Otter trawl, longlines, gillnets |
| | | | (A): 40-150 m (131-492 ft) | (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): 25-400 m (82-1,312 ft) | (J): Bottom habitats with a substrate of silt, mud, or hard bottom | Otter trawl |
| | | | (A): 50-350 m (164–1,148 ft) | (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): 0-250 m (0-820 ft) | (J): Bottom habitats with aquatic vegetation or substrate of sand, mud, or rocks | Otter trawl, gillnets |
| | | | (A): 15-365 m (49-1,198 ft) | (A): Hard bottom habitats including artificial reefs | |

| 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): <50 m (<164 ft) | (E): Bottom habitats, generally hard bottom sheltered nests, holes, or crevices where juveniles are guarded. | Otter trawl |
| | | | (L): <50 m (<164 ft) | (L): Hard bottom nesting areas | |
| | | | (J): <80 m (262 ft) | (J): Bottom habitat, often smooth areas near rocks or algae | |
| | | | (A): <110 m (361 ft) | (A): Bottom habitats; dig depressions in soft sediments | |
| Atlantic Halibut | Gulf of Maine, Georges Bank | Juveniles feed on annelid worms and crustaceans, adults mostly feed on fish | (J): 20-60 m (66-197 ft) | (J): Bottom habitat with a substrate of sand, gravel, or clay | Otter trawl, longlines |
| | | | (A):100-700 m (328-2,297 ft) | (A): Same as for (J) | |
| 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): 5-225 m (16-738 ft) | (J): Bottom habitat with seagrass beds or substrate of mud or fine-grained sand | Otter trawl, gillnets |
| | | | (A): 5-325 m (16-1,066 ft) | (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): 20-50 m (66-164 ft) | (J): Bottom habitats with substrate of sand or sand and mud | Otter trawl |
| | | | (A): 20-50 m (66-164 ft) | (A): Same as for (J) | |

| Species | Geographic Region of the Northwest Atlantic | Food Source | Essential Fish Habitat | | Commercial Fishing Gear Used |
|---|---|---|---|---|---|
| | | | Water Depth | Substrate | |
| American plaice | Gulf of Maine, Georges Bank | Polychaetes, crustaceans, mollusks, echinoderms | (J): 45-150 m (148-492 ft) | (J): Bottom habitats with fine grained sediments or a substrate of sand or gravel | Otter trawl |
| | | | (A): 45–175 m (148-574 ft) | (A): Same as for (J) | |
| Witch flounder | Gulf of Maine, Georges Bank, Mid-Atlantic Bight/southern New England | Mostly polychaetes (worms), echinoderms | (J): 50-450 m (164-1,476 ft) | (J): Bottom habitats with fine grained substrate | Otter trawl |
| | | | (A): 25-300 m (82-984 ft) | (A): Same as for (J) | |
| Winter flounder | Gulf of Maine, Georges Bank, Mid-Atlantic Bight/southern New England | Polychaetes, crustaceans | (E): <5 m (16 ft) | (E): Bottom habitats with a substrate of sand, muddy sand, mud, and gravel | Otter trawl, gillnets |
| | | | (J): 0.1-10 m (0.3-32 ft) (1-50 m age 1+) (3.2-164 ft) | (J): Bottom habitats with a substrate of mud or fine grained sand | |
| | | | (A): 1-100 m (3.2-328 ft) | (A): Bottom habitats including estuaries with substrates of mud, sand, gravel | |
| Atlantic wolffish Proposed in Amendment 16 | Gulf of Maine & Georges Bank | Mollusks, brittle stars, crabs, and sea urchins | (J): 40-240 m (131.2-787.4 ft) | J): Rocky bottom and coarse sediments | Otter trawl, longlines, and gillnets |
| | | | (A): 40-240 m (131.2-787.4 ft) | (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): 1-100 m (3.2-328 ft) | (J): Bottom habitats with substrate of mud or fine grained sand | Otter trawl |

| | Essential Fish Habitat | |
|---|---|---|
| | (A): 1-75 m (3.2-574 ft) | (A): Same as for (J) |

Note: Species life stages are summarized by letter in parentheses following species name. A = adult; E = egg; J = juvenile; m = meter.

### 6.1.3 Essential Fish Habitat (EFH)

EFH is defined by the Sustainable Fisheries Act of 1996 as "[t]hose waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The environment that could potentially be affected by the Proposed Action has been identified as 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. EFH descriptions of the general substrate or bottom types for all the benthic life stages of the species managed under these FMPs are summarized in Table 13. Full descriptions and maps of EFH for each species and life stage (except Atlantic wolffish) 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.

### 6.1.4 Gear Types and Interaction with Habitat

The groundfish fleet fishes for target species with a number of gear types: trawl, gillnet, and hook and line gear (including jigs, handline, and non-automated demersal longlines). This section discusses the characteristics of each of the gear types as well as the typical impacts to the physical habitat associated with each of these gear types.

#### 6.1.4.1 Gear Types

The characteristics of typical gear types used by the multispecies fishery are summarized in Table 14.

**Table 14 - 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 | 90 m long per net. | ~450 m. | Varies |
| Lines | N/A | Leadline and floatline with webbing (mesh) connecting | Mainline is parachute cord. Gangions (lines from mainline to hooks) are 15 inches long, 3 to 6 inches 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 | No nets, but 12/0 circle hooks are required. | No nets, but single to multiple hooks, "umbrella rigs" |
| Anchoring | N/A | 22 lb (9–11 kg) Danforth-style anchors are required at each end of the net string | 20-24lb (9-11kg) 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 |

### 6.1.4.2 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. Bottom trawls are designed to be towed along the seafloor and to catch a variety of demersal fish and invertebrate species.

The mid-water trawl is used to capture pelagic species throughout the water column. The mouth of the net typically ranges from 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. The fish are usually removed from the net while it remains in the water alongside the vessel by means of a suction pump. In some cases, the fish are removed from the net by repeatedly lifting the cod end aboard the vessel until the entire catch is in the hold.

Three general types of bottom trawl are used in the Northeast Region, but bottom otter trawls account for nearly all commercial bottom trawling activity. There is a wide range of otter trawl types used in the Northeast as a result of the diversity of fisheries and bottom types encountered in the region (NREFHSC 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. Bottom trawls are towed at a variety of speeds, but average about 5.6 km/hour (3 knots). Use of this gear in the Northeast is managed under several federal FMPs. 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 - that lie in contact with the seafloor - 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 rise higher off the bottom than flatfish (NREFHSC 2002).

Bottom otter trawls that are used on "hard" bottom (i.e., gravel or rocky bottom), or mud or sand bottom with occasional boulders, are rigged with rockhopper gear. The purpose of the "ground gear" in this case is to get the sweep over irregularities in the bottom without damaging the net. The purpose of the sweep in trawls rigged for fishing on smooth bottoms is 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 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 that it replaces (Carr and Milliken 1998).

#### 6.1.4.3 Gillnet Gear

The fishery also uses individual sink/anchor gillnets which are about 90 m long and 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 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 ranges from daily to semiweekly [Northeast Region Essential Fish Habitat Steering Committee (NREFHSC 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. Bottom gillnets are used to catch a wide range of species. Bottom gillnets are fished in two different ways, as "standup" and "tiedown" nets (Williamson 1998). Standup nets are typically used to 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 used to catch flounders and monkfish and are left in the water for 3 to 4 days. Other species caught in bottom gillnets in are dogfish and skates.

### 6.1.4.4 Hook and Line Gear

#### 6.1.4.4.1 Hand Lines/Rod and Reel

The simplest form of hook-and-line fishing is the hand line, which 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 and the sinkers vary from stones to cast lead. The hooks can vary from single to multiple arrangements in “umbrella” rigs. An attraction device must be used with the hook, usually consisting of a natural bait or an artificial lure. Hand lines can be carried by currents until retrieved or fished in such as manner as to hit bottom and bounce (Stevenson et al. 2004). Hand lines and rods and reels are used in the Northeast Region to catch a variety of demersal species.

#### 6.1.4.4.2 Mechanized Line Fishing

Mechanized line-hauling systems have been developed to allow smaller fishing crews to work more lines, and to use electrical or hydraulic power to work the lines on the spools. The reels, also called “bandits”, are mounted on the vessel bulwarks with the mainline wound around a spool. The line is taken from the spool over a block at the end of a flexible arm and each line may have a number of branches and baited hooks.

Jigging machines are used to jerk a line with several unbaited hooks up in the water to snag a fish in its body and is commonly used to catch squid. Jigging machine lines are generally fished in waters up to 600 m (1970 ft) deep. Hooks and sinkers can contact the bottom, depending upon the way the gear is used and may catch a variety of demersal species.

### 6.1.4.5 Longlines

The remaining gear type that is used by the fishery are bottom longlines which are a long length of line, often several miles long, 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 450 m and are deployed with 9 to 11 kg anchors. The mainline is a parachute cord. Gangions are typically 40 centimeters (cm) long and 1 to 1.8 m apart and are made of shrimp twine. These longlines are usually set for a few hours at a time (NREFHSC 2002).

When fishing with hooks, all hooks must be 12/0 circle hooks. A “circle hook” is, defined as a hook with the point turned back towards the shank and 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. The design of circle hooks enables them to be employed to reduce the damage to habitat features that would occur with use of other hook shapes (NREFHSC 2002).

### 6.1.4.6 Gear Interaction with Habitat

Historically, commercial fishing in the region has been conducted using hook and line, longline, gillnets and trawls. For decades, trawls have been intensively used throughout the region and have accounted 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. The primary source document used for this analysis was an advisory report prepared for the International Council for the Exploration of the Seas (ICES) that identified a number of

possible effects of beam trawls and bottom otter trawls on benthic habitats (ICES 2000). This report is based on scientific findings summarized in Lindeboom and de Groot (1998), which were peer-reviewed by an ICES working group. The focus of the report is the Irish Sea and North Sea, but it also includes assessments of effects in other areas. Two general conclusions were: 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). Regarding direct habitat effects, the report also concluded that:

> Loss or dispersal of physical features such as peat banks or boulder reefs (changes are always permanent and lead to an overall change in habitat diversity, which 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 (changes may be permanent leading to an overall change in habitat diversity, which could in turn lead to the local loss of species and species assemblages dependent on such biogenic features);
>
> 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 (changes are not likely to be permanent); and
>
> Alteration of the detailed physical features of the seafloor by reshaping seabed features such as sand ripples and damaging burrows and associated structures that provide important habitats for smaller animals and can be used by fish to reduce their energy requirements (changes are not likely to be permanent).

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

> Trawling reduces habitat complexity;
>
> Repeated trawling results in discernable 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.

An additional source of information for various gear types that relates specifically to the Northeast region is the report of 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) in October 2001 (NEFSC 2002). A panel of invited 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: 1) evaluating the existing scientific research on the effects of fishing gear on benthic habitats; 2) determining the degree of impact from various gear types on benthic habitats in the Northeast; 3) specifying the type of evidence that is available to support the conclusions made about the degree of impact; 4) ranking the relative importance of gear impacts on various habitat types; and 5) 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 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.

Additional information is provided in this report 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 to rank these three substrates in terms of their vulnerability to the effects of bottom trawling, although other factors such as frequency of disturbance from fishing and from natural events are also important. In general, impacts from trawling were determined to be greater in gravel/rock habitats with attached epifauna. Impacts on biological structure were ranked higher than impacts on physical structure. Effects of trawls on major physical features in mud (deep water clay-bottom habitats) and gravel bottom were described as permanent, and 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 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 longlines on sand would not be expected.

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), was also summarized in Amendment 13. 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 Exploration of the Sea (ICES) and National Research Council (NRC) reports, individual types of trawls and dredges were not evaluated. The impacts of bottom gillnets, traps, and longlines were limited to warm or shallow water environments with rooted aquatic vegetation or "live bottom" environments (e.g., coral reefs).

## *6.2 Target Species*

This section describes the species life history and stock population status for each of the 20 fish stocks that are managed under the Northeast Multispecies FMP that would be harvested by the groundfish fishery under provisions of the FMP. The description of species habitat associations described in Section 6.1.2 provides context for considering the interactions between gear and species. A comparison of depth-related demersal fish assemblages of Georges Bank and the Gulf of Maine is also provided for additional context. The discussion of allocated target species is concluded with an analysis of the interaction between the gear types the fishery will use (as described in Section 6.1.4) and allocated species. Most of the following discussions have been adapted largely from the GARM III report (NEFSC 2008) and can be accessed via the NEFMC website at http://www.nefmc.org.

### 6.2.1 Description of the Managed Species

The management unit is described in Amendment 16 to the FMP. Life history and habitat characteristics of the stocks managed in this FMP can be found in the Essential Fish Habitat Source documents (series) published as NOAA Technical Memorandums and available at http://www.nefsc.noaa.gov/nefsc/habitat/efh/.

Recent revisions to the National Standard guidelines (50 CFR 600.310, published in 74 *FR* 3178) expanded on the classification of stocks in an FMP. For the Northeast Multispecies FMP, the stocks identified as the management unit are considered "stocks in the fishery" as defined by the NSGs. There are no stocks currently identified as "ecosystem component species," though this classification may be used in the future.

The managed stocks/stocks in the fishery are:

- GOM cod
- GB cod
- GOM haddock
- GB haddock
- CC/GOM yellowtail flounder
- GB yellowtail flounder
- SNE/MA yellowtail flounder
- GOM winter flounder
- GB winter flounder
- SNE/MA winter flounder
- GOM/GB (Northern) windowpane flounder
- SNE/MA (Southern) windowpane flounder
- Atlantic halibut
- Atlantic wolffish
- Plaice
- Ocean pout
- Pollock
- Redfish
- White hake
- Witch flounder

A full description of the life history of these stocks can be found in Framework 44 (NEFMC 2010); no information in that section has been updated.

### 6.2.2 Summary of Groundfish Stock Status

The Groundfish Assessment Review Meeting (GARM III) conducted during October 2007 – August 2008 provided benchmark assessments for the 19 groundfish stocks managed under the Northeast Multispecies Fishery Management Plan. The GARM III process involved in-depth reviews of the data, models, biological reference points, and assessments of each of the 19 groundfish stocks at the time. This section summarizes the stock status in terms of biomass (B)

or spawning stock biomass (SSB) and fishing mortality (F) through 2007 as reported in NEFSC (2008). Projected SSB and F were estimated in 2008 and 2009 for most of the age-based GARM assessments. The Georges Bank yellowtail assessment is update each year through the TRAC and pollock was assessed in 2010 during SARC 50.

Atlantic wolffish was added to the multispecies groundfish stock complex in A16. Wolffish was assessed in 2008 in the Data Poor Working Group (DPWG 2008). A range of knife edge maturity and selectivity assumptions were used to characterize stock status due to a general lack of biological data on this stock.

The GARM III results show which groundfish stocks were overfished or experiencing overfishing in 2007 (Table 15). A total of 13 stocks were overfished (B less than ½ $B_{MSY}$) while 6 stocks were not overfished. Similarly, a total of 13 stocks were experiencing overfishing (F greater than $F_{MSY}$) while 6 stocks were not experiencing overfishing. Eleven of the stocks are both overfished and experiencing overfishing. Pollock, witch flounder, Georges Bank (GB) winter flounder, Gulf of Maine (GOM) winter flounder and northern windowpane have deteriorated in status, while GOM cod has improved. GOM cod is still experiencing overfishing but is no longer overfished. Four stocks (redfish, American plaice, GB haddock, and GOM haddock) were classified as not overfished and not experiencing overfishing. Note the GOM winter flounder status determination was uncertain and judged as likely overfished and probably experiencing overfishing.

Of the 14 groundfish stocks assessed in GARM III using an analytical assessment model, 7 stocks exhibited retrospective patterns that were considered severe enough that an adjustment to the population numbers and fishing mortality in 2007 was deemed necessary before determining current stock status and subsequently conducting projections. Retrospective pattern adjustments were done one of two ways: either a split in the survey time series during the mid-1990s or an adjustment to the population numbers at age in the terminal year based upon a measure of the age-specific retrospective pattern during the past seven years. Only for American plaice and redfish were the population numbers adjusted. For the other five stocks (GB cod, GB yellowtail, witch flounder, GOM winter flounder, SNE winter flounder) the split survey was used. The remaining seven stocks were judged to have a mild retrospective pattern that did not require an adjustment.

Since GARM II, many stocks have exhibited long term declines in weights-at-age. Age-specific fishery selectivity has also shifted in many stocks to older age groups due to a combination of reduced growth, fishery management measures, and changing fishing practices. These trends were incorporated into the updated biological reference points for the 19 groundfish stocks, and as a consequence many of the newly-estimated biomass reference points are now lower and the fishing mortality reference points higher than those estimated in GARM II. However, a direct one-to-one comparison between the old and new BRPs is inappropriate because of these changes in weights and partial recruitment at age.

Analyses from an ecosystem basis suggest current biomass management targets ($B_{MSY}$s) for GARM stocks are reasonable. The current targets compare favorably with the results of recent and historical studies in the region and are also in general agreement with results of many studies for other worldwide ecosystems. New summed BRPs for the GARM stocks are similar to BRPs from an aggregate surplus production model for these stocks. Aggregate model results suggest that the overall fishing mortality rate should be relatively low (F=0.15) to obtain MSY for this complex of GARM stocks.

**Table 15 – Summary of groundfish stock status in 2007**

| *Stock* | *Estimated F in 2007* | *Fmsy* | *Percent F Reduction to Fmsy* | *Biomass in 2007* | *Bmsy* | *Percent change in Biomass to achieve Bmsy* | *MSY* | *2007 Overfished Status* | *2007 Overfishing Status* |
|---|---|---|---|---|---|---|---|---|---|
| *Georges Bank cod* | 0.303 | 0.247 | 18% | 17,672 | 148,084 | 738% | 31,159 | Overfished | Overfishing |
| *Gulf of Maine cod* | 0.456 | 0.237 | 48% | 33,878 | 58,248 | 72% | 10,014 | Not Overfished | Overfishing |
| *Georges Bank haddock* | 0.229 | 0.350 | none | 315,975 | 158,873 | above Bmsy | 32,746 | Not Overfished | No Overfishing |
| *Gulf of Maine haddock* | 0.346 | 0.430 | none | 5,850 | 5,900 | 1% | 1,360 | Not Overfished | No Overfishing |
| *Georges bank Yellowtail* | 0.289 | 0.254 | 12% | 9,527 | 43,200 | 353% | 9,400 | Overfished | Overfishing |
| *Southern New England-Mid Atlantic Yellowtail* | 0.413 | 0.254 | 38% | 3,508 | 27,400 | 681% | 6,100 | Overfished | Overfishing |
| *Cape Cod-Gulf of Maine yellowtail* | 0.414 | 0.239 | 42% | 1,922 | 7,790 | 305% | 1,720 | Overfished | Overfishing |
| *American plaice* | 0.094 | 0.190 | none | 11,106 | 21,940 | 98% | 4,011 | Not Overfished | No Overfishing |
| *Witch flounder* | 0.292 | 0.200 | 32% | 3,434 | 11,447 | 233% | 2,352 | Overfished | Overfishing |
| *Georges Bank winter flounder* | 0.282 | 0.260 | 8% | 4,964 | 16,000 | 222% | 3,500 | Overfished | Overfishing |
| *Gulf of Maine winter flounder* | 0.417 | 0.283 | 32% | 1,100 | 3,792 | 245% | 917 | Overfished | Overfishing |
| *Southern New England-Mid-Atlantic winter flounder* | 0.649 | 0.248 | 62% | 3,368 | 38,761 | 1051% | 9,742 | Overfished | Overfishing |
| *Acadian redfish* | 0.007 | 0.038 | none | 172,342 | 271,000 | 57% | 10,139 | Not Overfished | No Overfishing |
| *white hake* | 0.150 | 0.125 | 17% | 19,800 | 56,254 | 184% | 5,800 | Overfished | Overfishing |
| *pollock* [1,4] | 10.975 [2] | 5.66 | 48% | 0.754 [3] | 2 | 165% | 11,320 | Not Overfished | Overfishing |
| *northern windowpane* [1] | 1.96 | 0.50 | 74% | 0.24 [3] | 1.4 | 483% | 700 | Overfished | Overfishing |
| *southern windowpane* [1] | 1.85 | 1.47 | 21% | 0.19 [3] | 0.34 | 79% | 500 | Not Overfished | Overfishing |
| *ocean pout* [1] | 0.38 | 0.76 | none | 0.48 | 4.94 | 929% | 3,754 | Overfished | No Overfishing |
| *Atlantic halibut* | 0.065 | 0.073 | none | 1,300 | 49,000 | 3669% | 3,500 | Overfished | No Overfishing |

[1] *Fmsy and Bmsy index proxies are listed for pollock, ocean pout, southern and northern windowpane.*

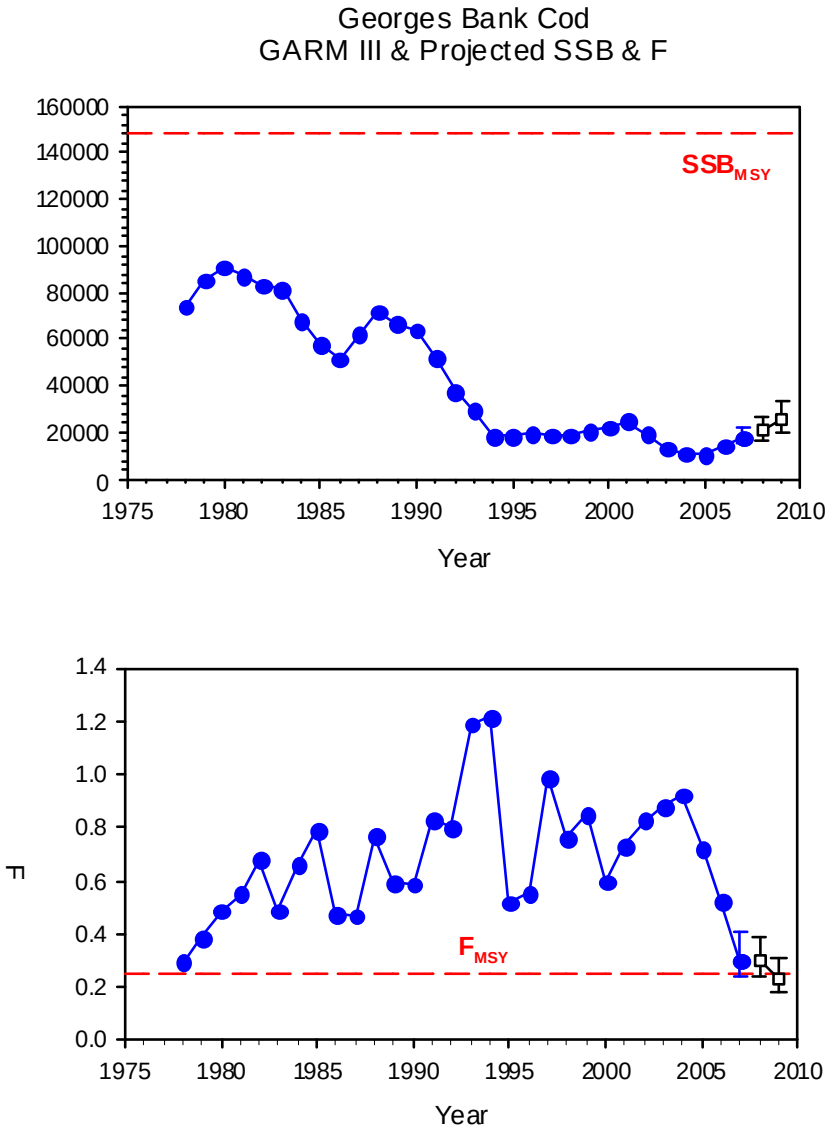
[2] *GARM III values are equal to the catch in 2007 / average 2006 & 2007 indices (Updated relative F using the average of 2006, 2007 & 2008 is 10.46).*

[3] *Index point estimates are in the table. Status determination is made using the 3 year average (pollock = 0.90, N windowpane = 0.53, S windowpane = 0.21 kg / tow ).*

[4] *Status determination for amendment 16 will be based on calculations including the 2008 fall survey index.*

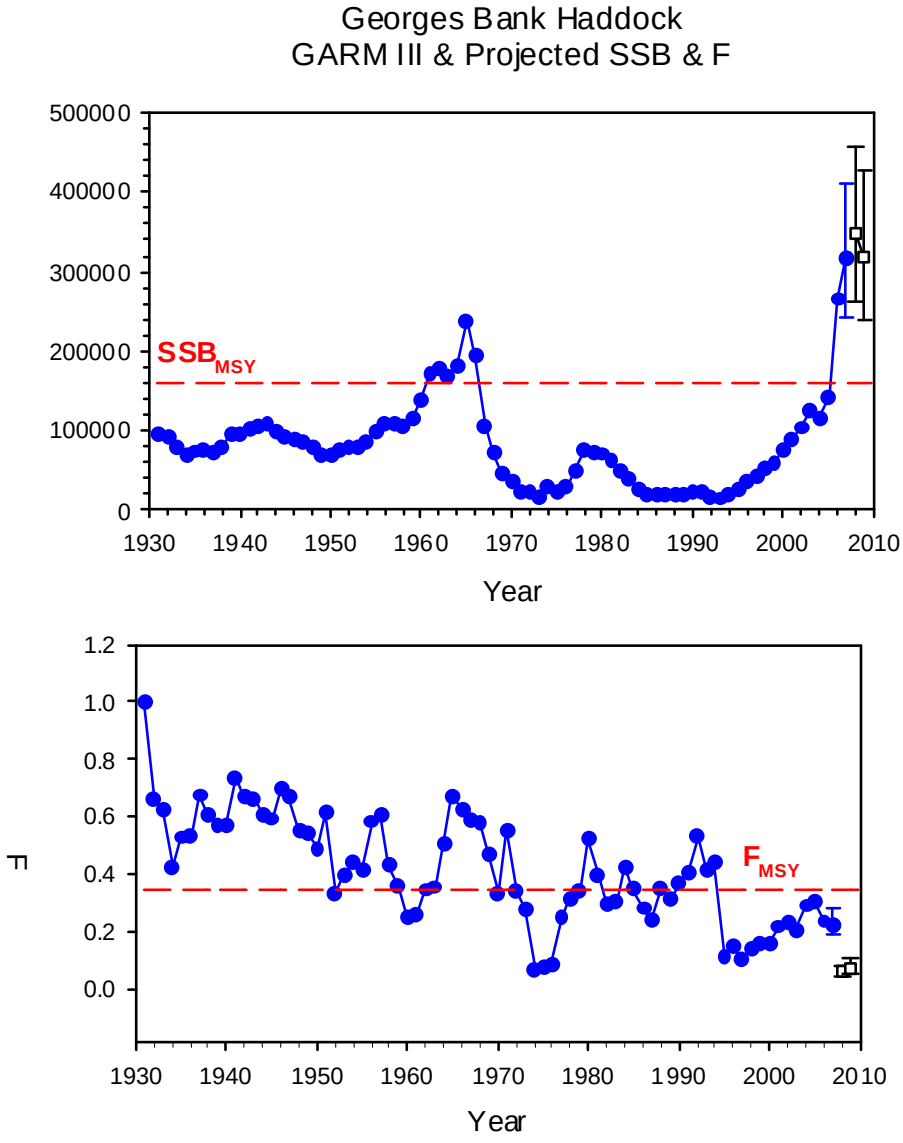
A. Georges Bank cod was overfished and was experiencing overfishing in 2007.
Spawning biomass has remained low since 1994. Fishing mortality has been decreasing since 2004. A split in the survey time series was used to adjust for the retrospective pattern.

**Figure 10 – Georges Bank cod spawning stock biomass (SSB) and fishing mortality (F) estimates during 1978-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates. Projected SSB and F with 80% confidence intervals are shown with open squares.**



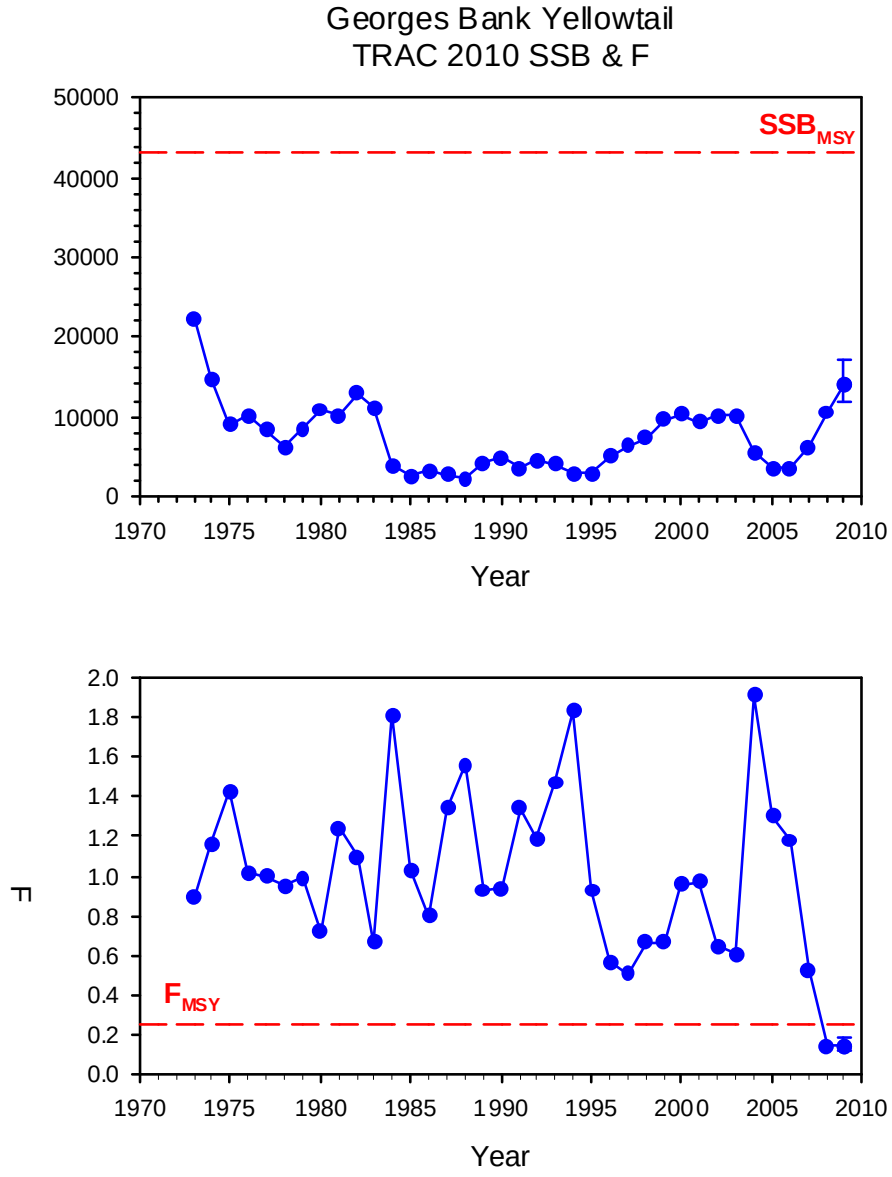
B. Georges Bank haddock was not overfished and was not experiencing overfishing in 2007.
Georges Bank haddock has been rebuilt to about twice $B_{msy}$. Spawning biomass has increased since 1993. Fishing mortality has remained below $F_{msy}$ since 1995. The partial recruited strong 2003 year class made up most of the catch in 2007. No retrospective adjustment was made for Georges Bank haddock.

**Figure 11 – Georges Bank haddock spawning stock biomass (SSB) and fishing mortality (F) estimates during 1931-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates. Projected SSB and F with 80% confidence intervals are shown with open squares.**



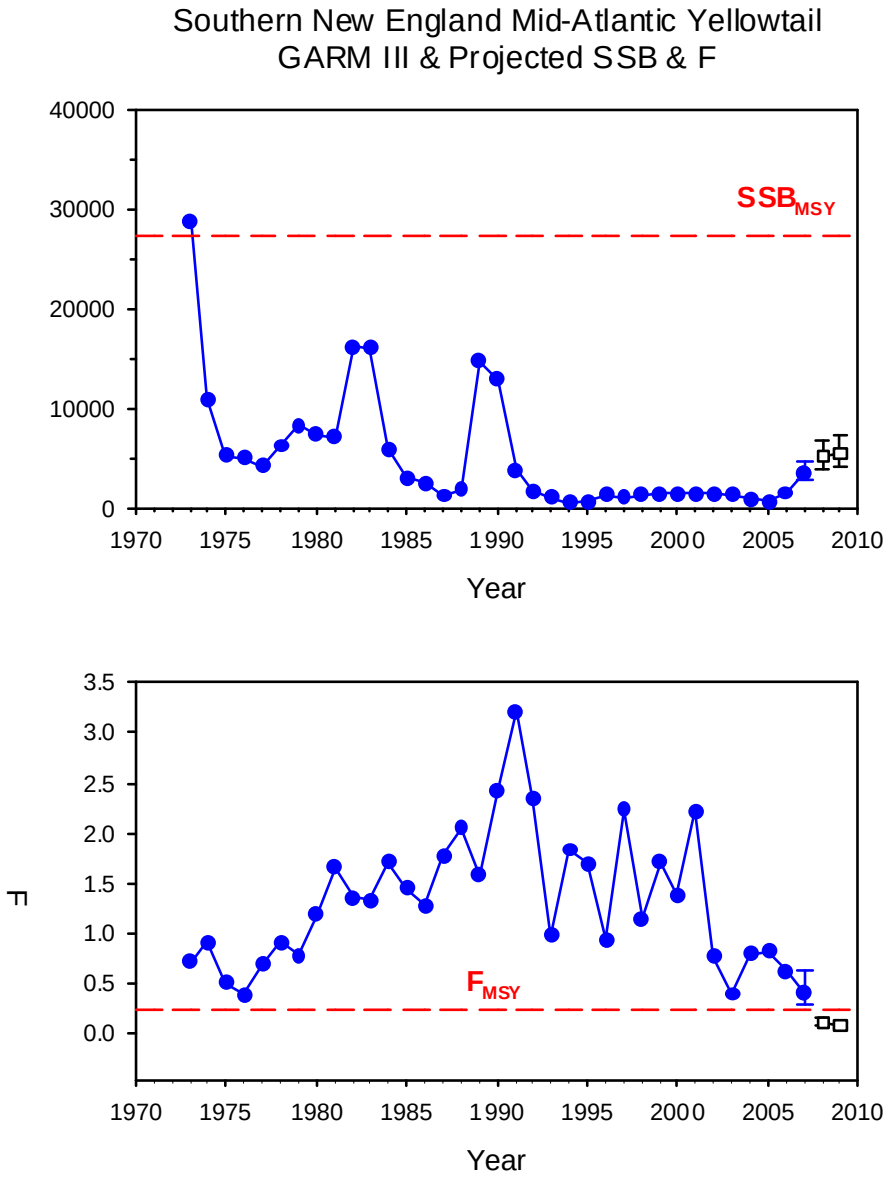
C. Georges Bank yellowtail flounder was overfished and was not experiencing overfishing in 2009. Georges Bank yellowtail flounder was assessed at the TRAC 2010. Spawning biomass has been relatively low since 1984. There has been a slight increase in spawning biomass since the late 1980s. Fishing mortality has had a decreasing trend since 2004. A split in the survey time series was used to adjust for the retrospective pattern.

**Figure 12 – Georges Bank yellowtail flounder spawning stock biomass (SSB) and fishing mortality (F) estimates during 1973-2009 reported in TRAC 2010 along with 80% confidence intervals for 2009 estimates.**



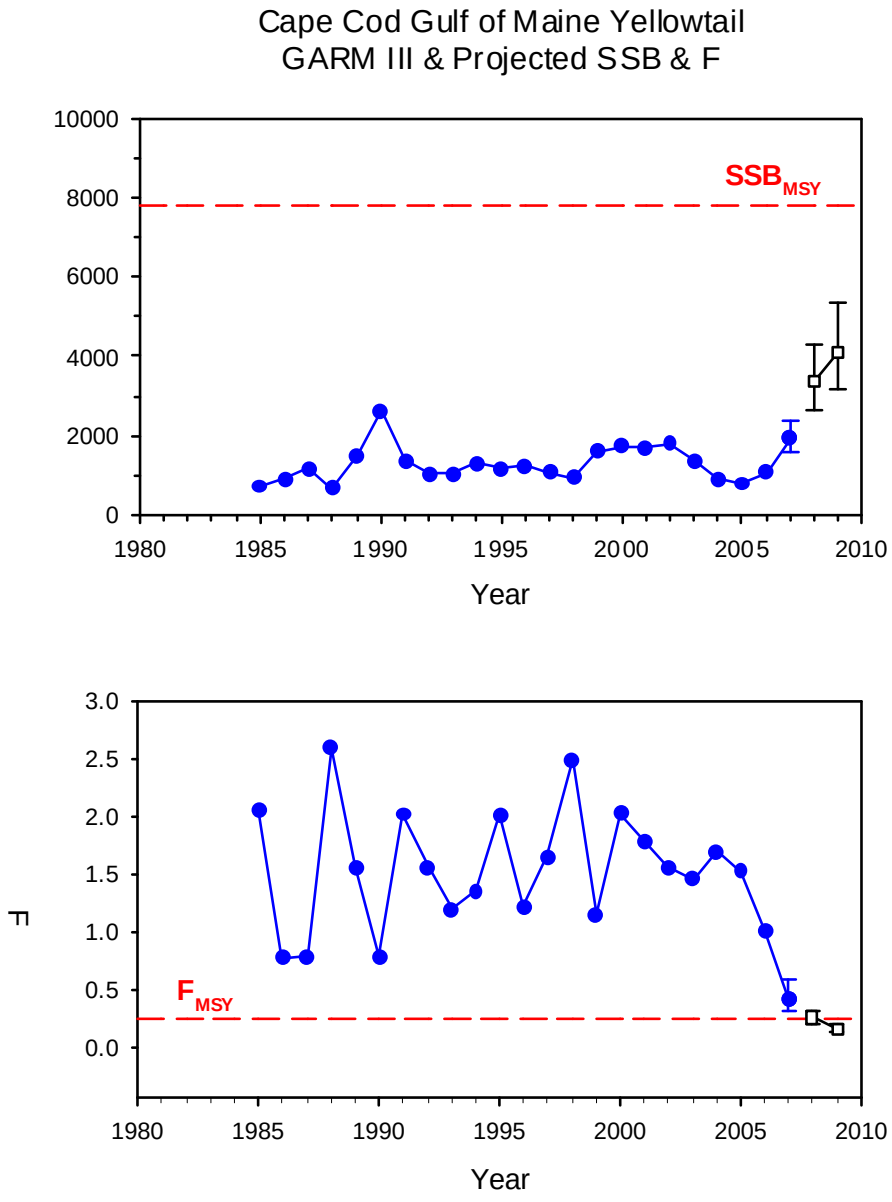
D. Southern New England/Mid-Atlantic yellowtail flounder was overfished and was experiencing overfishing in 2007. Spawning biomass has been low since 1991. There are some signs of rebuilding from a strong 2005 year class. Fishing mortality has had a decreasing trend since 2001 but remains slightly above $F_{MSY}$. No retrospective adjustment was made for SNE/Mid-Atlantic yellowtail flounder.

**Figure 13 – Southern New England/Mid-Atlantic yellowtail flounder spawning stock biomass (SSB) and fishing mortality (F) estimates during 1973-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates. Projected SSB and F with 80% confidence intervals are shown with open squares.**



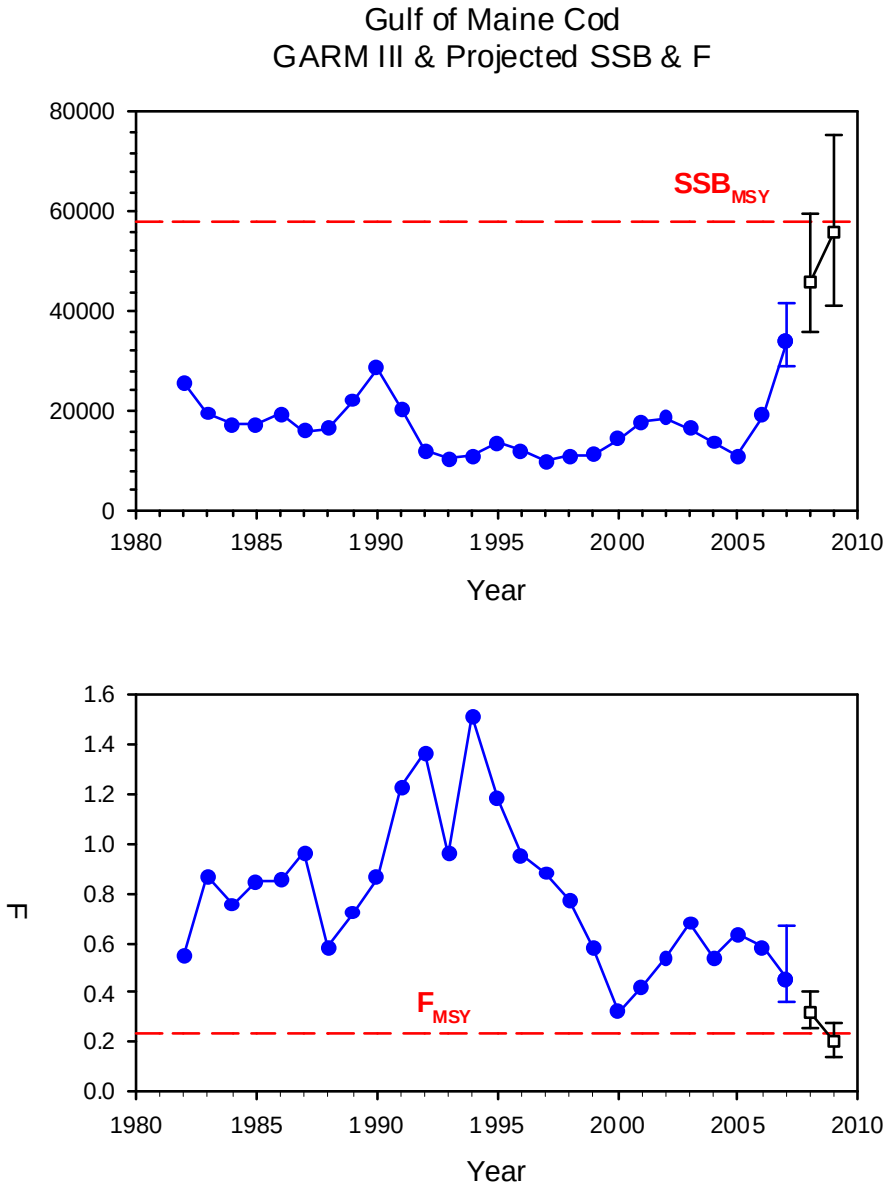
E. Cape Cod/Gulf of Maine yellowtail flounder was overfished and was experiencing overfishing in 2007. Spawning biomass been relatively low over the time series. There appears to be a moderately strong 2005 year class. Fishing mortality has decreased since 2004. No retrospective adjustment was made for Cape Cod/Gulf of Maine yellowtail flounder.

**Figure 14 – Cape Cod/Gulf of Maine yellowtail flounder spawning stock biomass (SSB) and fishing mortality (F) estimates during 1985-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates. Projected SSB and F with 80% confidence intervals are shown with open squares.**



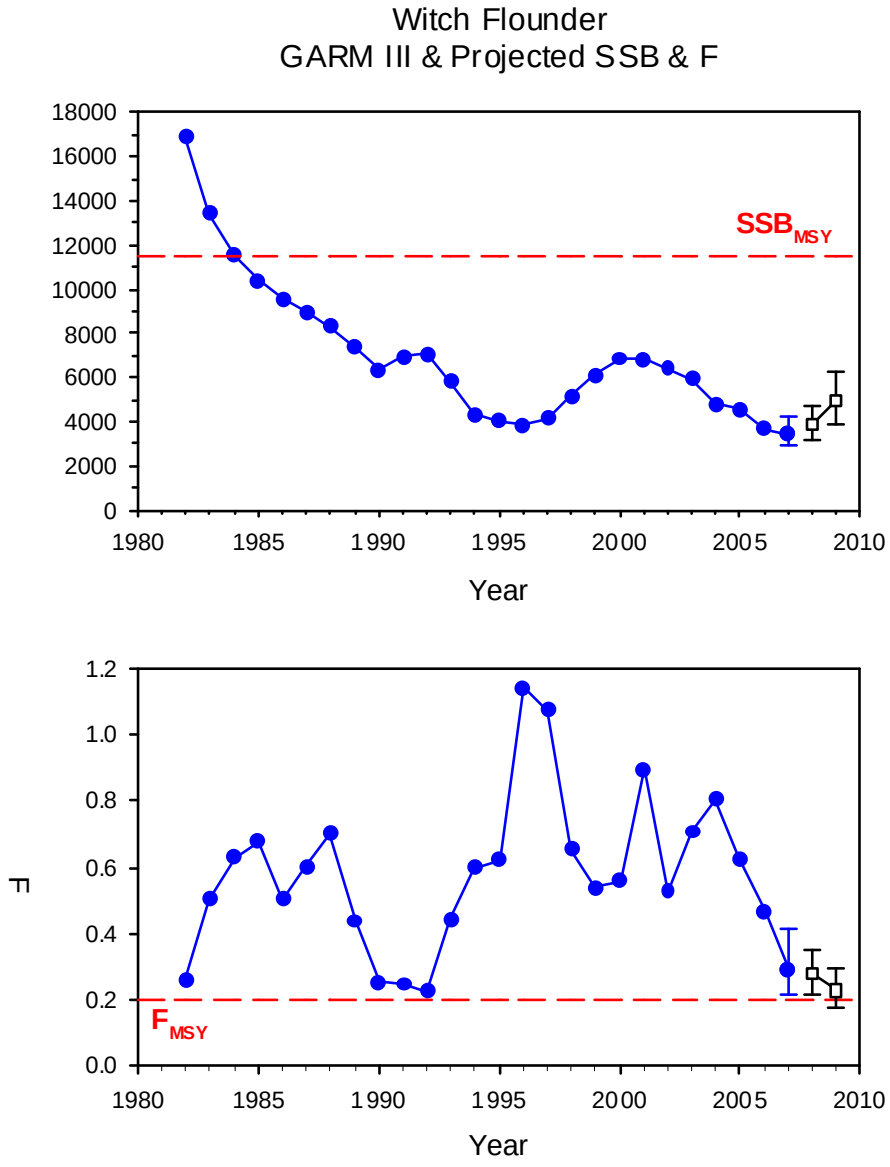
F. Gulf of Maine cod was not overfished but was experiencing overfishing in 2007. Spawning biomass increased in 2006 and 2007. An above average 2005 year class was estimated. Fishing mortality decreased from 1994 to 2000 but has remained above $F_{msy}$ since then. No retrospective adjustment was made for Gulf of Maine Cod.

**Figure 15 – Gulf of Maine cod spawning stock biomass (SSB) and fishing mortality (F) estimates during 1982-2007 using GARM III (blue circles) data along with 80% confidence intervals for 2007 estimates. Projected SSB and F with 80% confidence intervals are shown with open squares.**



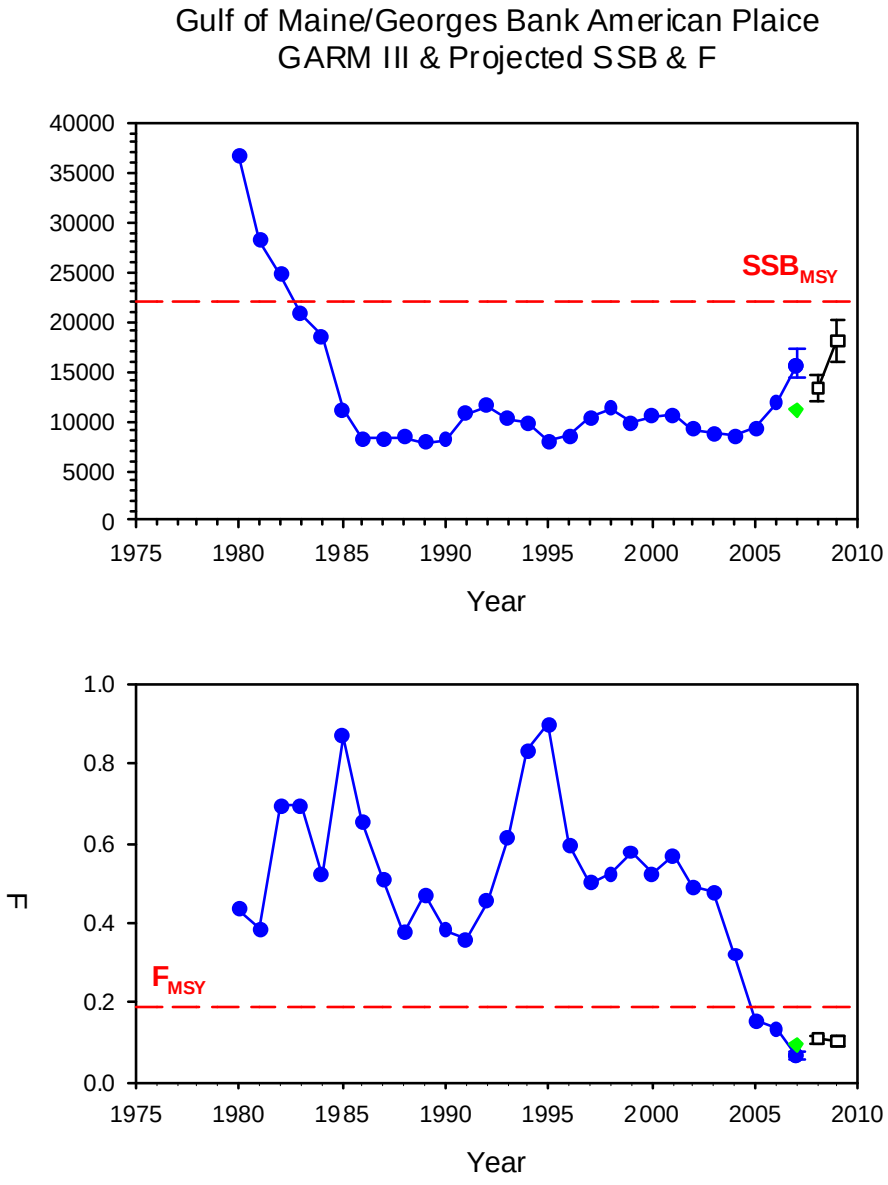
G. Witch flounder was overfished and was experiencing overfishing in 2007. Spawning biomass has declined since 2001 to a record low in 2007. Fishing mortality has decreased since 2004. A split in the survey time series was used to adjust for the retrospective pattern.

**Figure 16 – Witch flounder spawning stock biomass (SSB) and fishing mortality (F) estimates during 1982-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates. Projected SSB and F with 80% confidence intervals are shown with open squares.**



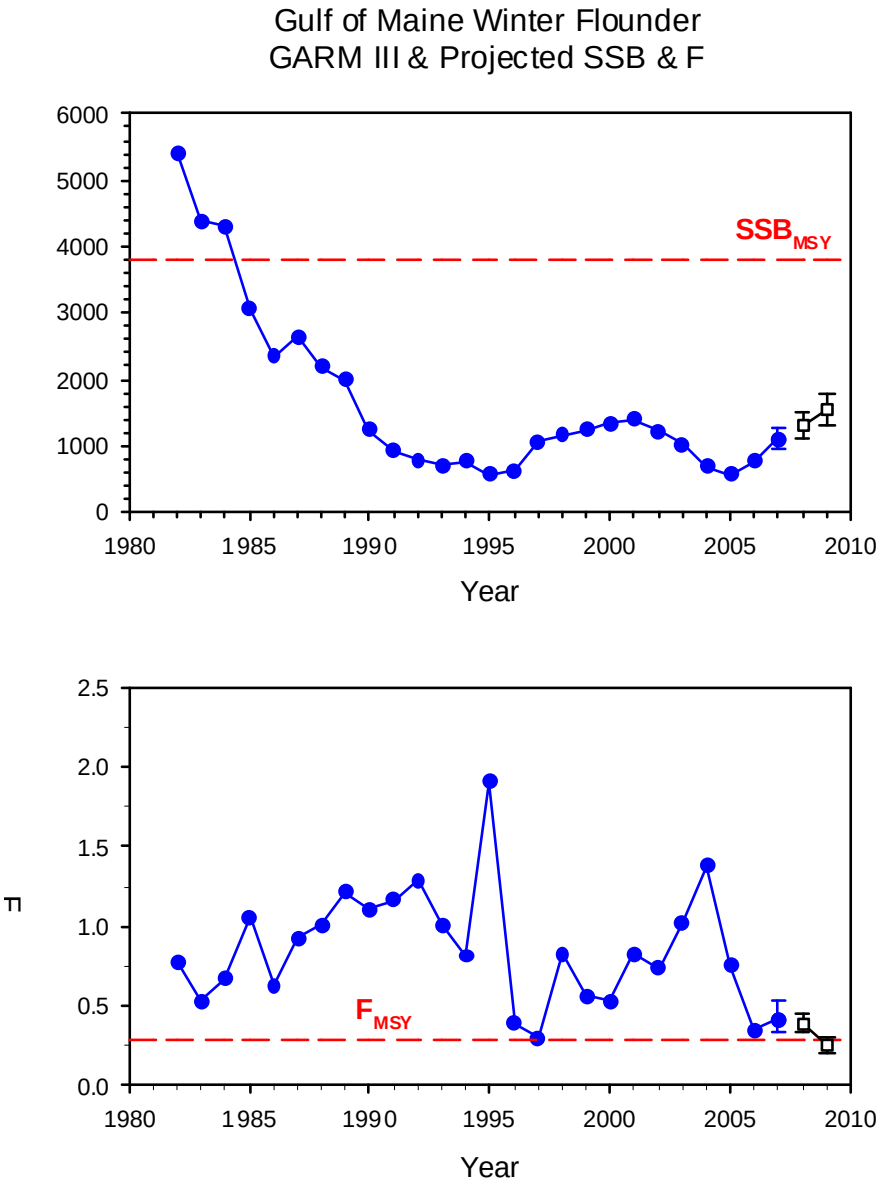
H. American plaice was not overfished and was not experiencing overfishing in 2007. Spawning biomass has been low with a slight increasing trend since 1986. Fishing mortality has had a decreasing trend since 1995. Terminal year population numbers and fishing mortality were adjusted with Mohn's rho estimates.

**Figure 17 – American plaice spawning stock biomass (SSB) and fishing mortality (F) estimates during 1980-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates. Mohn's rho adjusted SSB and F are shown in the terminal year with a green diamond. Projected SSB and F with 80% confidence intervals are shown with open squares.**



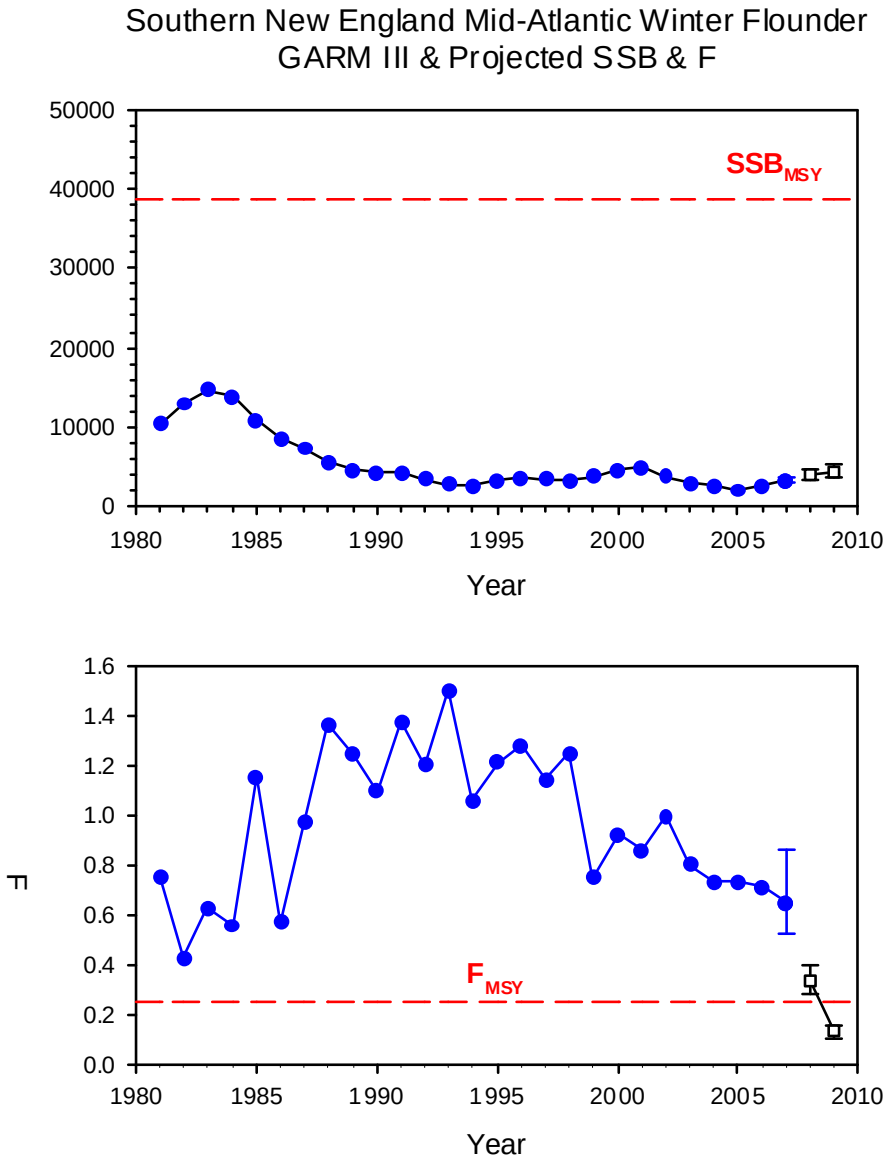
I. Gulf of Maine winter flounder status determination is unknown. Status determination from the split survey run suggests the stock is overfished and overfishing is occurring in 2007. Exact status determination was unknown due to the severity of the retrospective pattern and the magnitude of the change with a retrospective adjustment. However SSB appears to be well below $B_{msy}$ and fishing mortality is likely above $F_{msy}$.

**Figure 18 – Gulf of Maine winter flounder spawning stock biomass (SSB) and fishing mortality (F) estimates during 1982-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates from the split survey run. Projected SSB and F with 80% confidence intervals are shown with open squares.**



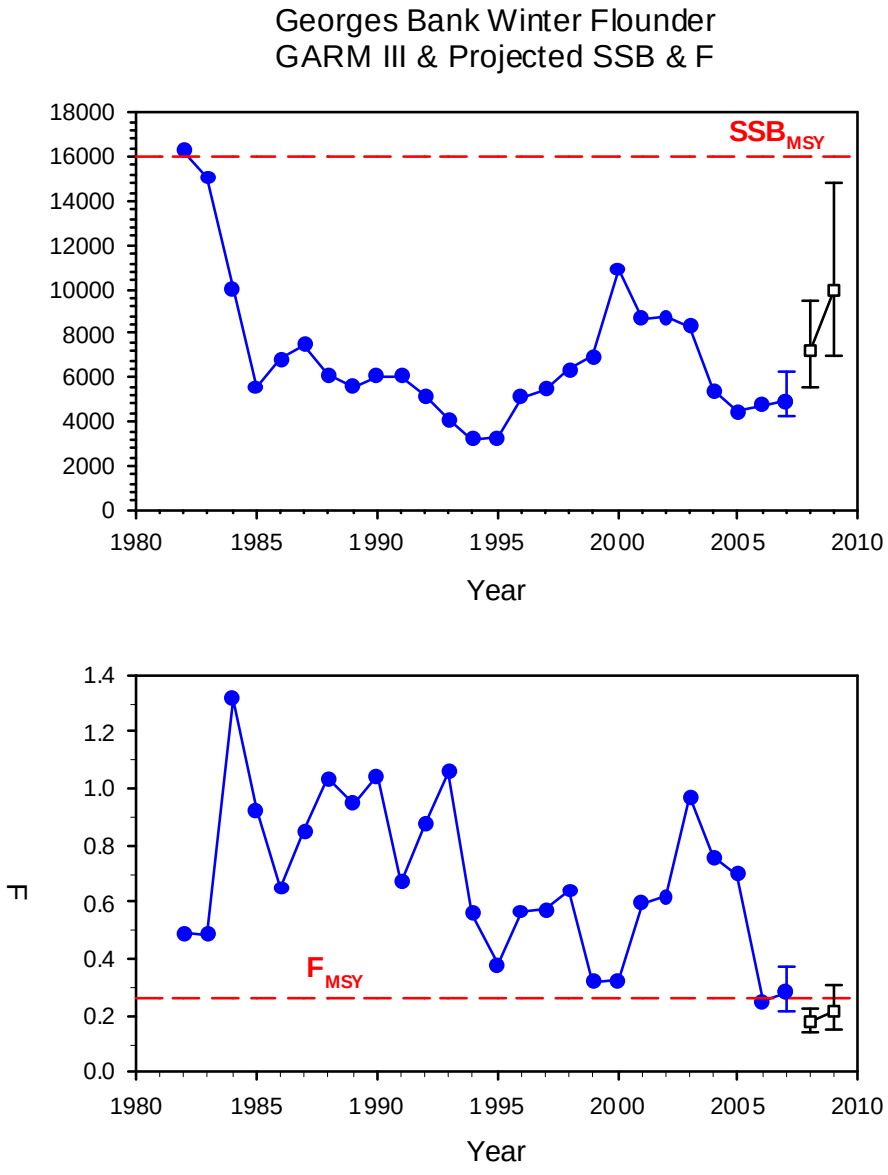
J. Southern New England/Mid-Atlantic winter flounder was overfished and was experiencing overfishing in 2007. Spawning biomass has been very low since the late-1980s. Fishing mortality has been declining since 1993 but remain well above $F_{msy}$. A split in the survey time series was used to adjust for the retrospective pattern.

**Figure 19 – Southern New England/Mid-Atlantic winter flounder spawning stock biomass (SSB) and fishing mortality (F) estimates during 1981-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates. Projected SSB and F with 80% confidence intervals are shown with open squares.**



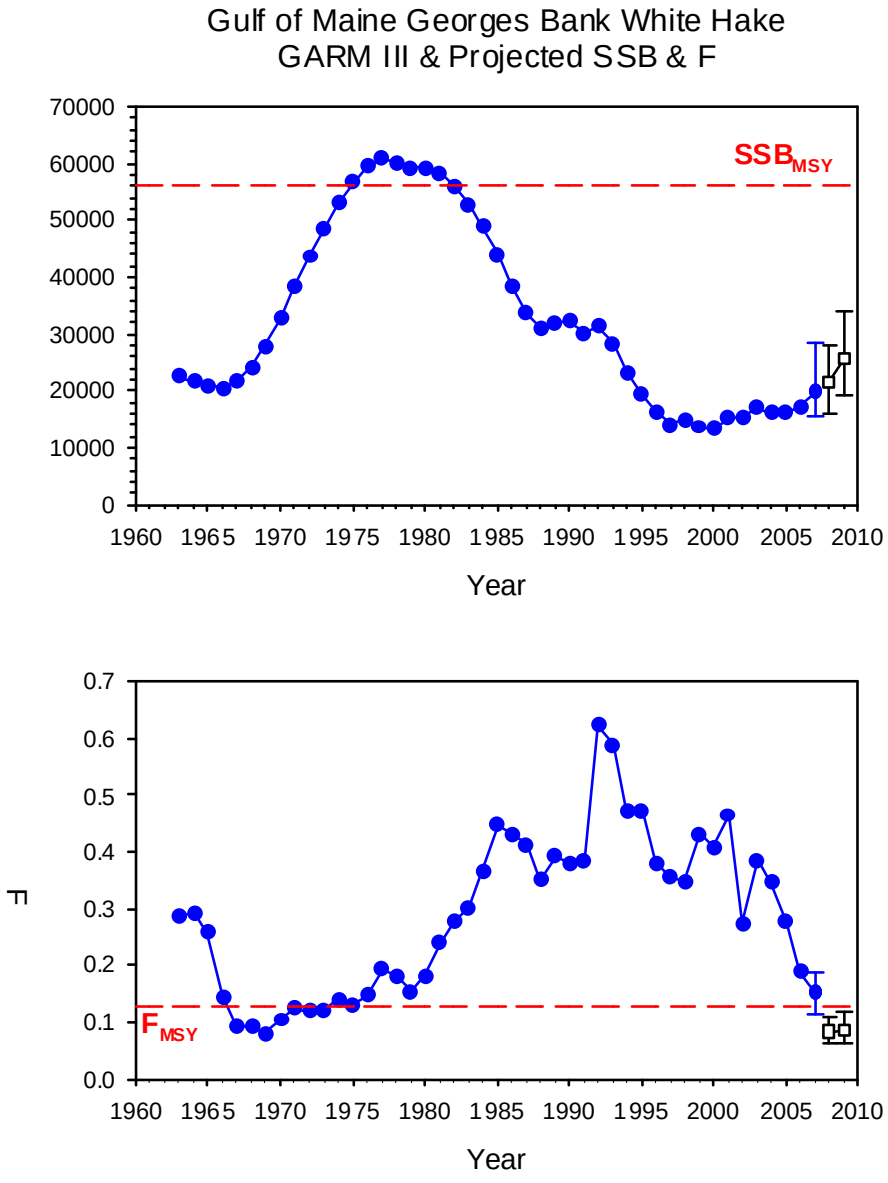
K. Georges Bank winter flounder was overfished and was experiencing overfishing in 2007. Spawning Biomass has declined since 2000. Fishing mortality declined from 2003 but was just above $F_{msy}$ in 2007. No retrospective adjustment was made for Georges Bank winter flounder.

**Figure 20 – Georges Bank winter flounder spawning stock biomass (B) and fishing mortality (F) estimates during 1982-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates. Projected SSB and F with 80% confidence intervals are shown with open squares.**



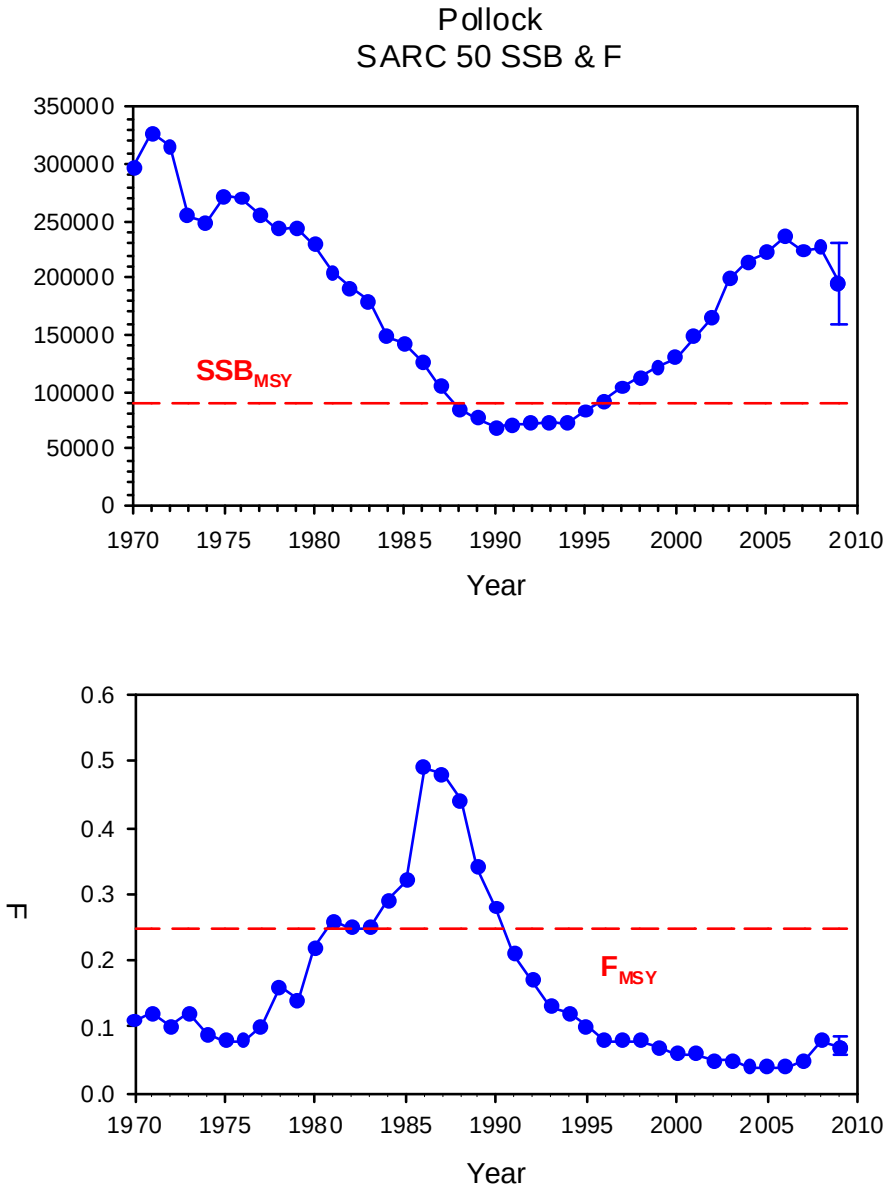
L. White hake was overfished and was experiencing overfishing in 2007. Biomass increased slightly during 2000-2007. Fishing mortality has declined since 2003. No retrospective adjustment was made for white hake.

**Figure 21 – Georges Bank/Gulf of Maine white hake spawning stock biomass (SSB) and fishing mortality rate (F) during 1963-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates. Projected SSB and F with 80% confidence intervals are shown with open squares.**



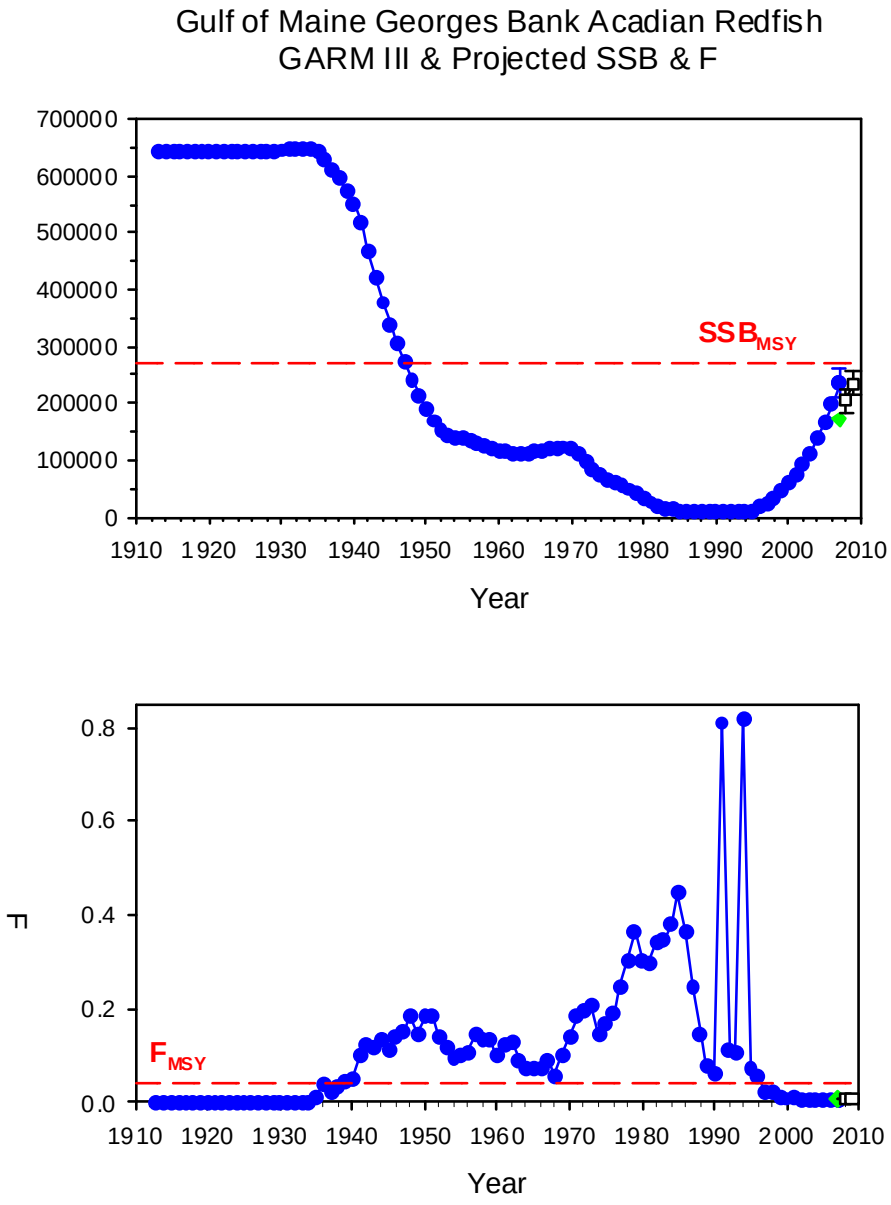
M. Pollock was not overfished and was not experiencing overfishing in 2009. Pollock was assessed at SARC 50 2010. SSB has increased from 1990 to 2006. There has been a slight decline in SSB since 2006.

**Figure 22 – Georges Bank/Gulf of Maine pollock spawning stock biomass (SSB) and fishing mortality rate (F) during 1970-2009 reported in SARC 50 along with 80% confidence intervals for 2009 estimates.**



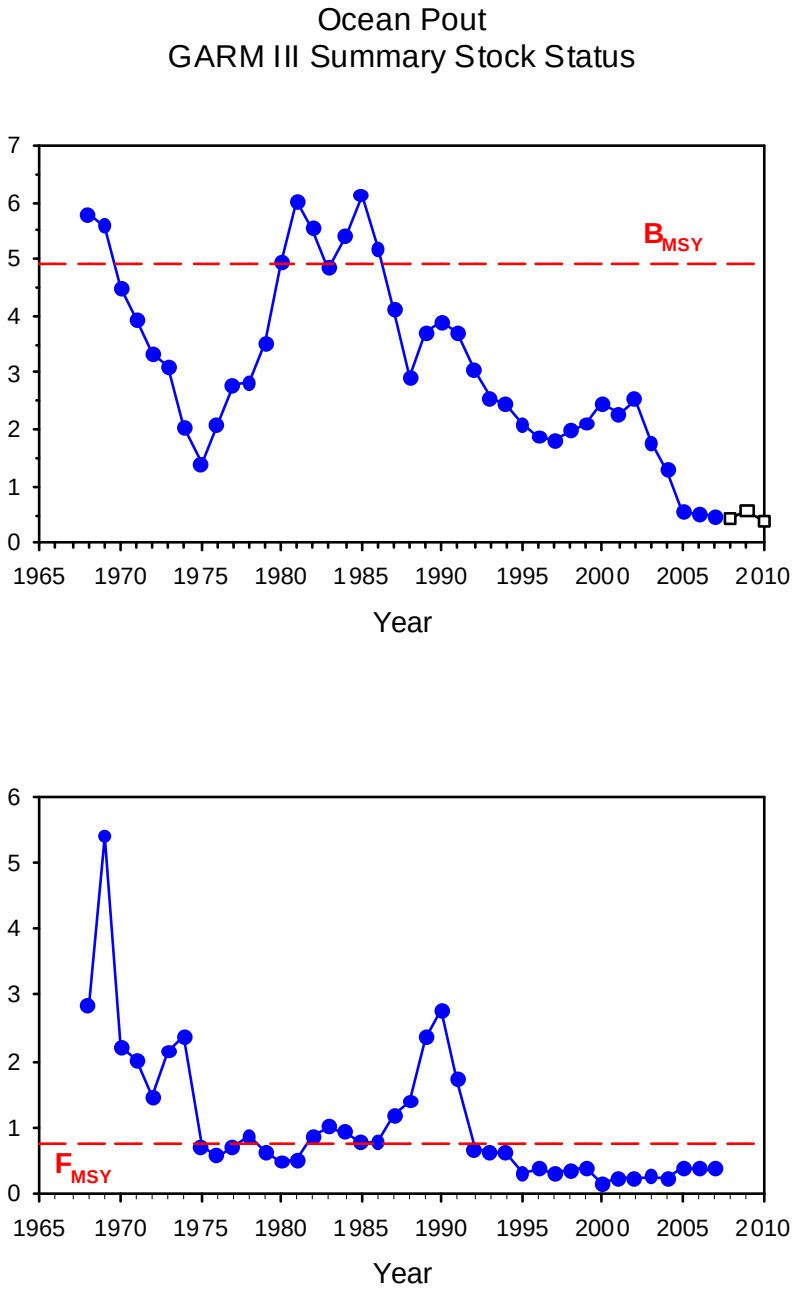
N. Acadian redfish was not overfished and was not experiencing overfishing in 2007. Spawning biomass has increased substantially since the mid-1990s. Fishing mortality has been below $F_{msy}$ since 1997. Terminal year population numbers and fishing mortality were adjusted with Mohn's rho estimates.

**Figure 23 – Gulf of Maine/Georges Bank Acadian redfish spawning stock biomass (SSB) and fishing mortality (F) estimates during 1913-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates. Mohn's rho adjusted SSB and F are shown in the terminal year with a green diamond. Projected SSB and F with 80% confidence intervals are shown with open squares.**



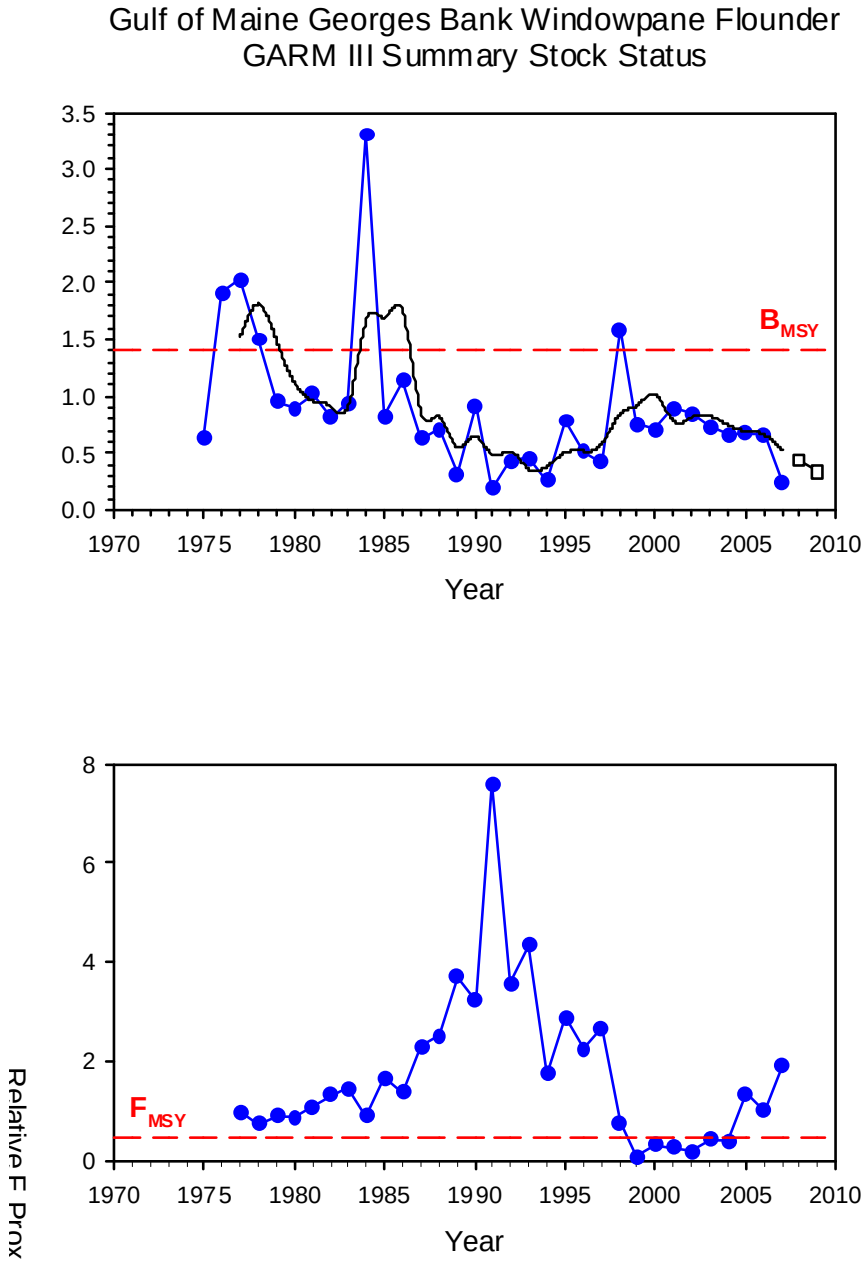
O. Ocean pout was overfished and was not experiencing overfishing in 2007. Biomass has had a decreasing trend since 2002. Fishing mortality has been well below $F_{msy}$ since 1992. There are no signs of stock rebuilding despite that fishing mortality is relatively low.

**Figure 24 – Ocean pout spring biomass index (B) and relative exploitation rate (F) during 1968-2007 reported in GARM III. Updated biomass indices for 2008 to 2010 are also shown with open squares. Surveys done with the Bigelow are converted to Albatross units.**



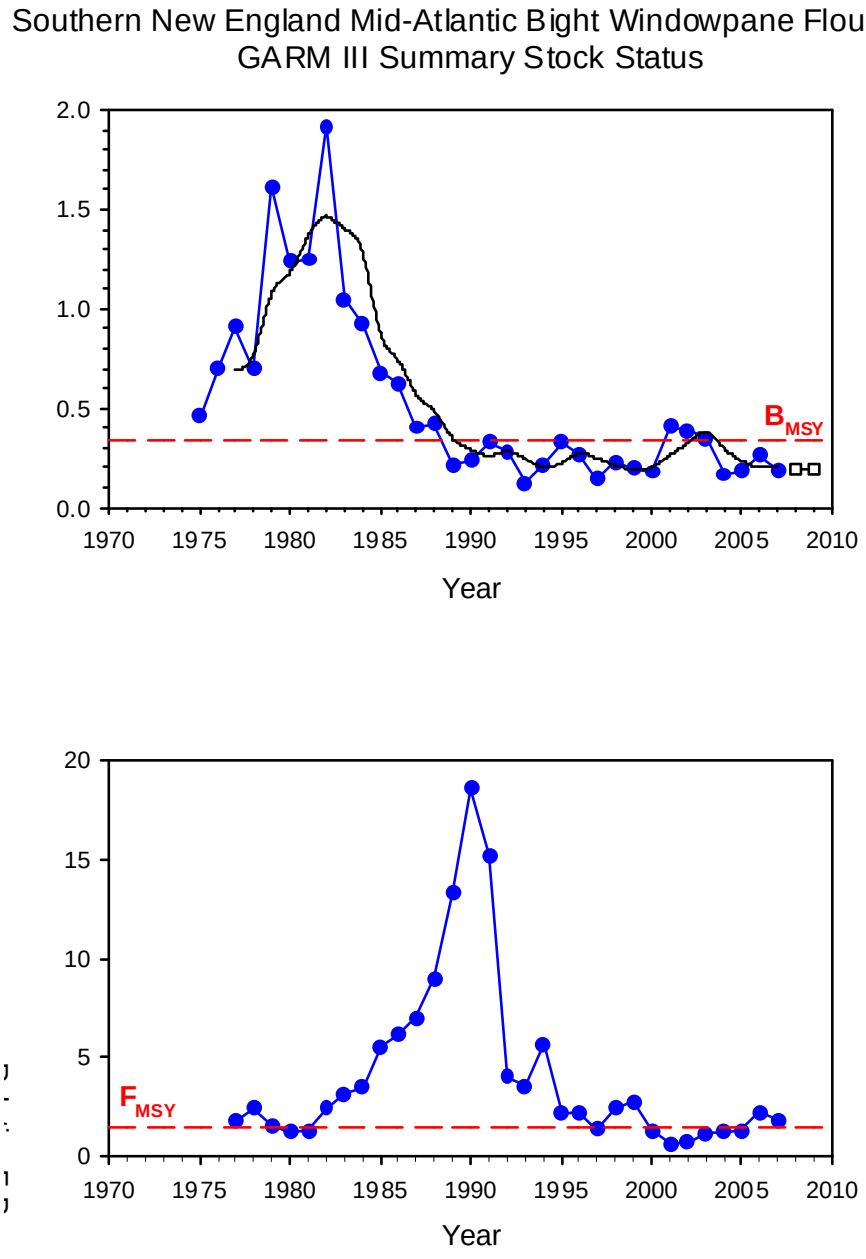
P. Northern windowpane flounder was overfished and was experiencing overfishing in 2007. Biomass has decreased since 2001. Fishing mortality has been increasing since 2002.

**Figure 25 – Gulf of Maine/Georges Bank windowpane flounder fall biomass index (B) and relative exploitation rate (F) during 1975-2007 reported in GARM III. Biomass status determination is based on the lagged three year average plotted with a solid black line. Updated biomass indices for 2008 and 2009 are also shown with open squares. Surveys done with the Bigelow are converted to Albatross units.**



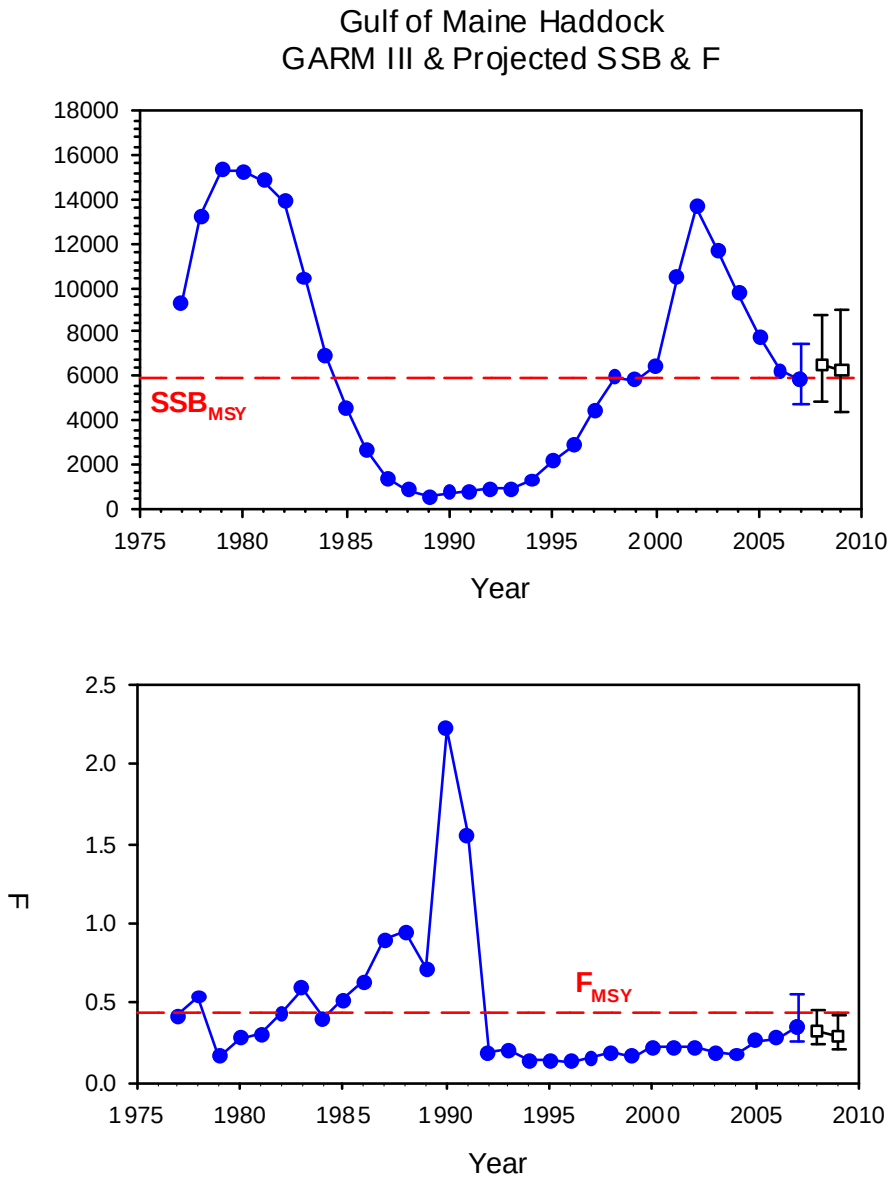
Q. Southern windowpane flounder was not overfished and was experiencing overfishing in 2007. Biomass has been low and fluctuated without trend since the late-1980s. The relative F has increased above $F_{msy}$ in 2006 and 2007.

**Figure 26 – Southern New England/Mid-Atlantic windowpane flounder fall biomass index (B) and relative exploitation rate (F) during 1975-2007 reported in GARM III. Biomass status determination is based on the lagged three year average plotted with a solid black line. Updated biomass indices for 2008 and 2009 are also shown with open squares. Surveys done with the Bigelow are converted to Albatross units.**



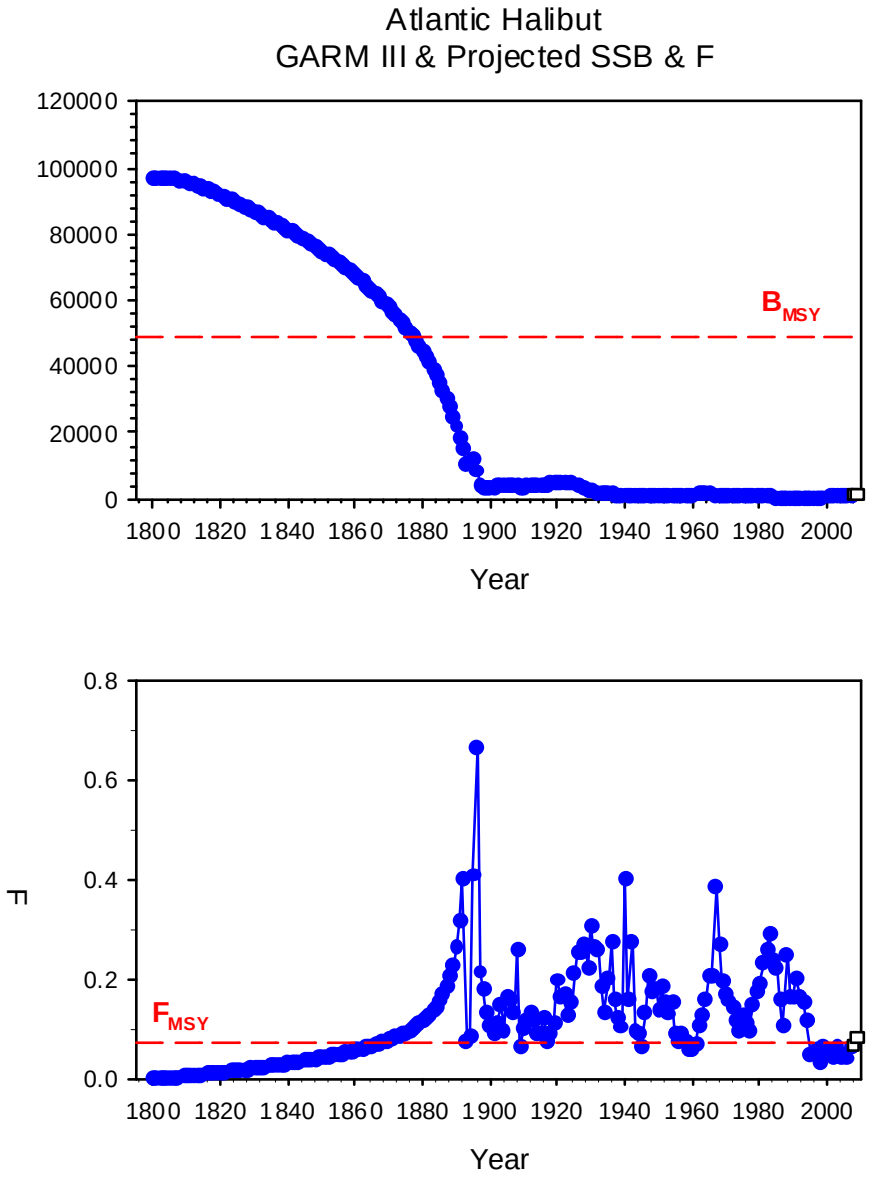
R. Gulf of Maine haddock was not overfished and was not experiencing overfishing in 2007. Spawning biomass increased from 1989 to 2002 and has decreased since then. Fishing mortality has been below $F_{msy}$ since 1992. No retrospective adjustment was made for Gulf of Maine haddock.

**Figure 27 – Gulf of Maine haddock spawning stock biomass (SSB) and fishing mortality (F) during 1977-2007 reported in GARM III (blue circles) along with 80% confidence intervals for 2007 estimates. Projected SSB and F with 80% confidence intervals are shown with open squares.**



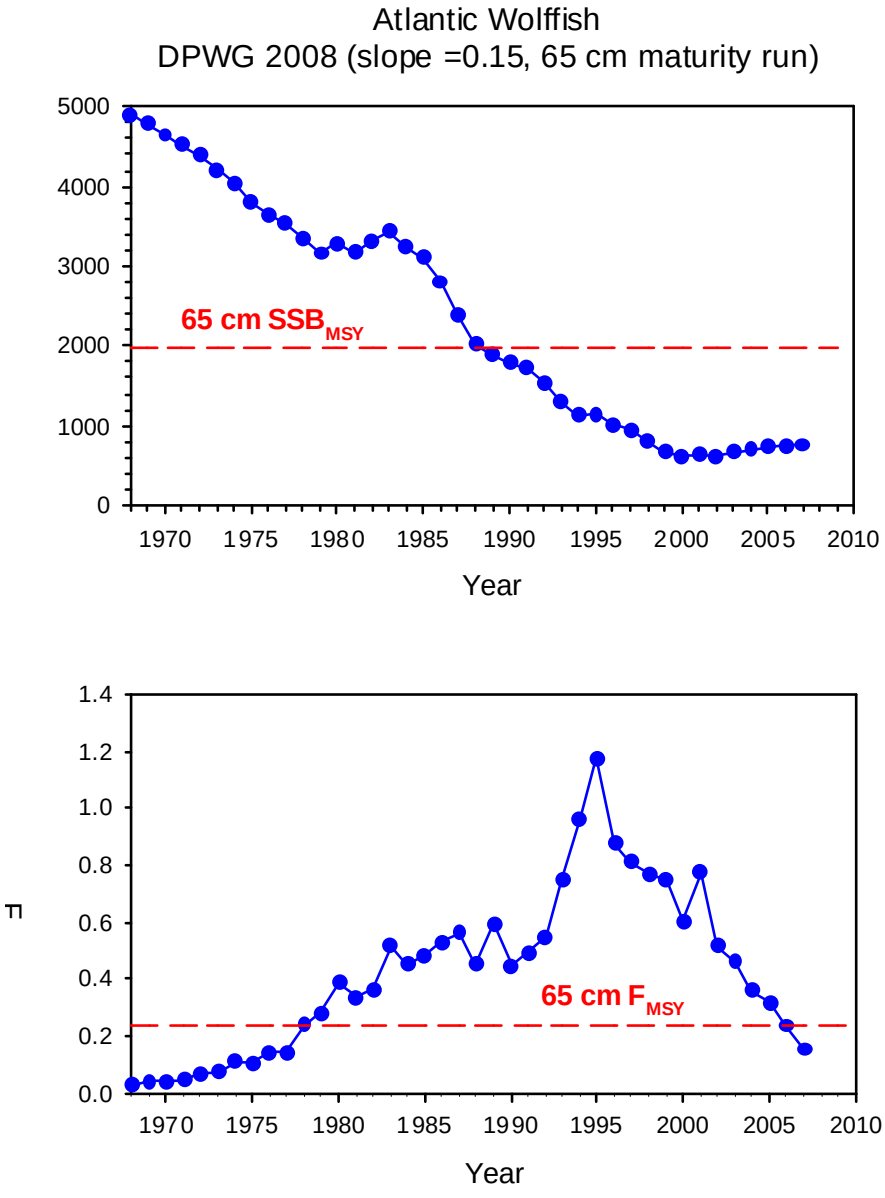
S. Atlantic halibut was overfished and was not experiencing overfishing in 2007. Biomass has been stable and well below $B_{msy}$ since the late 1800s. Fishing mortality has been below $F_{msy}$ since 1995.

**Figure 28 – Atlantic halibut biomass (B) and fishing mortality rate (F) during 1800-2007 reported in GARM III (blue circles). Projected SSB and F with 80% confidence intervals are shown with open squares.**



T. Atlantic wolffish was overfished and was not experiencing overfishing in 2007. Spawning stock biomass has been stable but low since the late 1990s. Fishing mortality has been declining since the mid 1990s.

**Figure 29 – Atlantic wolffish spawning stock biomass (SSB) and fishing mortality rate (F) during 1968-2007 reported in DPWG 2008 (blue circles) assuming 65cm knife edge maturity and an assumed selectivity slope equal to 0.15. Stock status did not change using different assumptions on maturity and selectivity.**



### 6.2.3 Assemblages of Fish Species

Georges Bank and the Gulf of Maine have been historically characterized by high levels of fish production. Several studies have attempted to identify 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. Depth and salinity were identified as major physical influences explaining assemblage structure. Gabriel (1992) identified six assemblages, which are compared with the results of Overholtz and Tyler (1985) in Table 16 (adapted from Amendment 16). For the Affected Area, including southern New England, these assemblages and relationships are considered to be relatively consistent for purposes of general description. The assemblages include allocated target, non-allocated target, and bycatch species. As presented in Table 16, the terminology and definitions of habitat types varies slightly between the two studies. For further information on fish habitat relationships, see Table 13.

**Table 16 – 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 |

### 6.2.4 Areas Closed to Fishing within the Groundfish Fishery Area

Select areas are closed to some level of fishing to protect the sustainability of fishery resources. The designation of long-term closures has resulted in the removal or reduction of fishing effort from important fishing grounds, with an expected result that fishery-related mortalities to stocks utilizing the closed areas may have been reduced. Figure 30 shows the Closed Areas for:

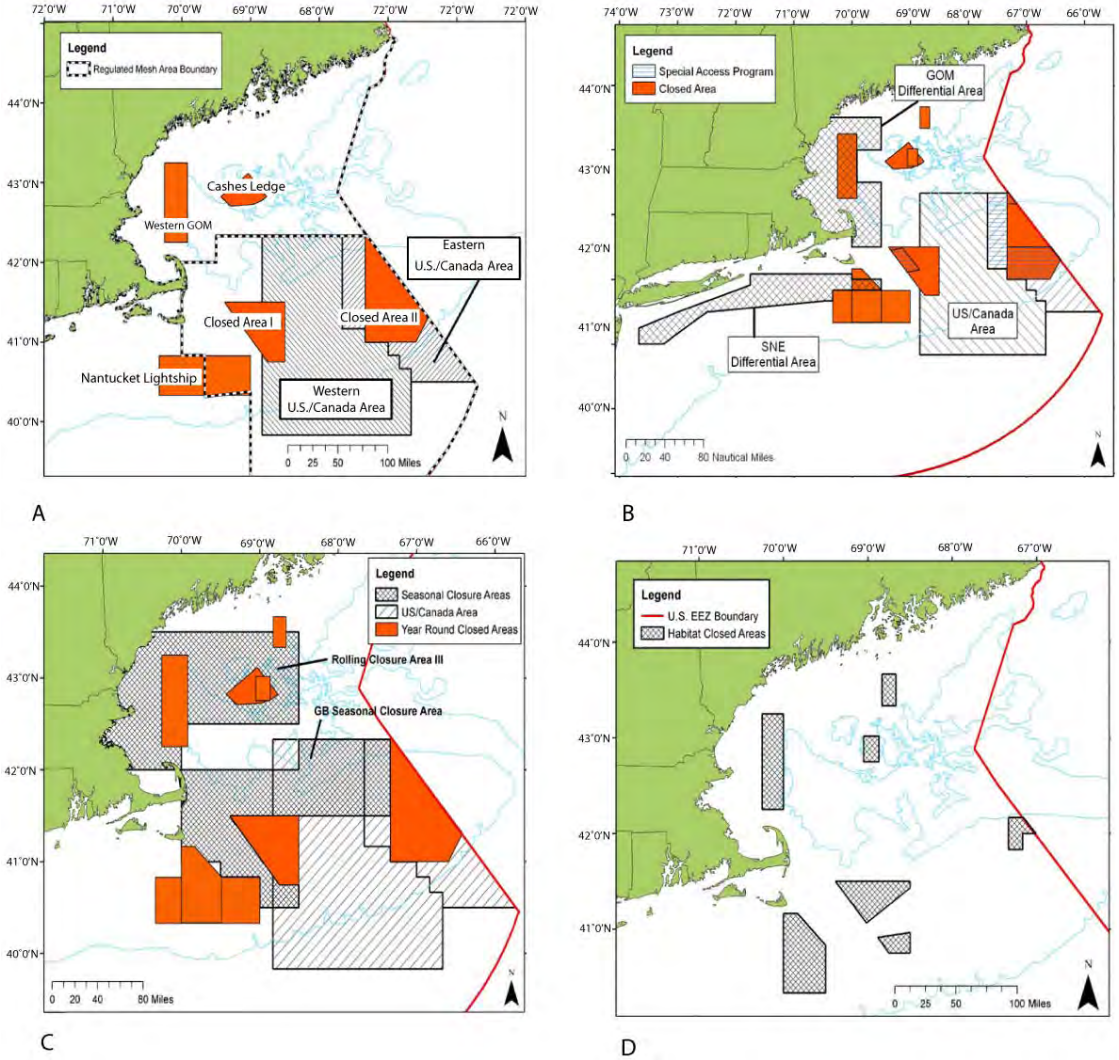
A. Northeast Multispecies Closed Areas and U.S./Canada Management Area;

B. Northeast Multispecies Differential Days-at-Sea Areas, Closed Areas, Special Access Programs, and the U.S./Canada Management Area;

C. Northeast Multispecies May Seasonal Closures Overlaid on Northeast Multispecies Closed Areas and the U.S./Canada area; and

D. Essential Fish Habitat Closure Areas.

**Figure 30 - Northeast Multispecies Closed Areas and United States/Canada**



### 6.2.5 U.S./Canada Fishery Information

U.S./Canada TACs

The U.S. TACs have varied over time due to primarily the change in the percentage shares allocated to the U.S. under the Sharing Understanding and the stock conditions (fishing mortality and biomass status). The stock conditions exert the dominant influence on the size of the TACs, and it should be noted that in some years, there is relatively high scientific uncertainty regarding stock size (see Transboundary Resource Assessment Committee documents). Despite the change in the weighting formula involving current distribution and historic catch from 60/40 to 85/15 (from 2004 through 2009, respectively), the percentage shares have not varied substantially. The U.S. shares of cod and haddock increased, while the share of yellowtail decreased, then increased, then decreased again.

**Table 17 – U.S./Canada TACs (mt) and Percentage Share by Year**

| Year | TAC Type | Cod | Haddock | Yellowtail Flounder |
|---|---|---|---|---|
| 2011 90/10 | Total Shared TAC<br>U.S. TAC<br>Canada TAC | <br>(**19%**)<br>(81%) | <br>(**43%**)<br>(57%) | <br>(**55%**)<br>(45%) |
| 2010 *90/10 | Total Shared TAC<br>U.S. TAC<br>Canada TAC | 1,350<br>338 (25%)<br>1,012 (75%) | 29,600<br>11,988 (40.5%)<br>17,612 (59.5%) | Δ 1,500<br>Ω 1,200 *(64%)*<br>□ 756 *(36%)* |
| 2009 85/15 | Total Shared TAC<br>U.S. TAC<br>Canada TAC | 1,700<br>527 (31 %)<br>1,173 (69 %) | 30,000<br>11,100 (37 %)<br>18,900 (63 %) | 2,100<br>1,617 (77 %)<br>483 (23 %) |
| 2008 80/20 | Total Shared TAC<br>U.S. TAC<br>Canada TAC | 2,300<br>667 (29 %)<br>1,633 (71 %) | 23,000<br>8,050 (35 %)<br>14,950 (65 %) | 2,500<br>** 1,950 (78 %)<br>550 (22 %) |
| 2007 75/25 | Total Shared TAC<br>U.S. TAC<br>Canada TAC | 1,900<br>494 (26 %)<br>1,406 (74 %) | 19,000<br>6,270 (33 %)<br>12,730 (67 %) | 1,250<br>900 (72 %)<br>350 (28 %) |
| 2006 70/30 | Total Shared TAC<br>U.S. TAC<br>Canada TAC | 1,700<br>374 (22 %)<br>1,326 (78 %) | 22,000<br>7,480 (34 %)<br>14,520 (66 %) | 3,000<br>2,070 (69 %)<br>930 (31 %) |
| 2005 65/35 | Total Shared TAC<br>U.S. TAC<br>Canada TAC | 1,000<br>260 (26 %)<br>740 (74 %) | 23,000<br>7,590 (33 %)<br>15,410 (67 %) | 6,000<br>4,260 (71 %)<br>1,740 (29 %) |
| 2004 60/40 | Total Shared TAC<br>U.S. TAC<br>Canada TAC | 1,300<br>300 (23 %)<br>1,000 (77 %) | 15,000<br>5,100 (34 %)<br>9,900 (66 %) | 7,900<br>6,000 (76 %)<br>1,900 (24 %) |

* Weighting formula: x/y resource distribution/utilization

* * Adjusted downward to 1,868.7 mt due to overharvest of 2007 TAC

Δ Developed unilaterally by the Council

□ (36% of Canada's desired shared TAC of 2,100 mt)

Ω Adjusted downward to 1,047 mt due to overharvest of 2009 TAC

U.S. Catch from Shared Stocks

The catch of Eastern GB cod, and haddock, and GB yellowtail flounder have varied due the availability of TAC, pertinent regulations, fish availability, market conditions and other factors. For example, particularly notable is the large FY 2004 catch of GB yellowtail flounder that resulted from the large TAC and the opening of the Closed Area II Yellowtail Flounder Special Access Program. Since 2004, the haddock TAC has not been a limiting factor, whereas access to the eastern U.S./Canada Area was limited multiple times by closures as a result of the projected attainment of the yellowtail and cod TACs. In only two instances have one of the TACs been exceeded. In FY 2007, the GB yellowtail TAC was overharvested by 9 percent as a result of late reporting, and relatively slow accounting of yellowtail catch by the scallop fleet (from outside scallop access areas). Since that time, NMFS modified its monitoring to improve the timelines of such data. The GB yellowtail TAC was again exceeded in 2009. The methodology of estimating discards can be found at the following internet address: http://www.nero.noaa.gov/nero/regs/infodocs/DiscardCalculations.pdf.

Note, for cod and haddock, for trips that fished both inside and outside of the Eastern U.S./Canada Area, in-season monitoring attributed all fish caught on such trips towards the TAC. Because such trips include fish caught both inside and outside of the Eastern U.S./Canada Area, for 2006, the final catch numbers were adjusted downward to reflect only fish caught inside the Eastern Area. All final catch numbers include adjustments made to reflect live weight, as well as adjustments made to account for the discrepancy between vessel monitoring system data and dealer data.

Pursuant to Regional Administrator authority to modify certain measures to optimize catch (neither under-harvest, nor over-harvest the TACs), NMFS has relied upon three management tools: modifications to the cod and yellowtail trip limits, closures to the eastern U.S./Canada Area, and prohibition on the use of flatfish nets. For the 2008, 2009, and 2010 fishing years, the Council recommended, and NMFS implemented a delay in the opening of the Eastern U.S./Canada Area for vessels fishing with trawls, in order to avoid trawl fishing during the season when the cod catch rate is usually high.

During FYs 2004-2010 there were several Special Access Programs (SAPs), which provided vessels opportunities to fish in the U.S. Canada Management Area under rules which differed from the generic regulations that apply to the U.S. Canada Management Area. The catch under each of the SAPs (kept and discarded) counted toward the pertinent U.S. TAC specified for each FY (cod, haddock, and yellowtail flounder), and were consistent with the Understanding.

**Table 18 – U.S. Catch from Shared Stocks**

| Cod | | | | |
|---|---|---|---|---|
| Fishing Year | TAC (mt) | Catch (% of TAC) | Catch (mt) | Discards (% of catch) |
| 2004 | 300 | 59 % | 177 | 23 % |
| 2005 | 260 | 94 % | 244 | 64 % |
| 2006 | 374 | 90 % | 335 | 50 % |
| 2007 | 494 | 64 % | 315 | 67 % |
| 2008 | 667 | 75 % | 501 | 15 % |
| 2009 | 527 | 89 % | 467 | 35 % |

| Haddock | | | | |
|---|---|---|---|---|
| Fishing Year | TAC (mt) | Catch (% of TAC) | Catch (mt) | Discards (% of catch) |
| 2004 | 5,100 | 21 % | 1,060 | 18 % |
| 2005 | 7,590 | 8 % | 589 | 12 % |
| 2006 | 7,480 | 9 % | 671 | 37 % |
| 2007 | 6,270 | 5 % | 307 | 46 % |
| 2008 | 8,050 | 20 % | 1,649 | 4 % |
| 2009 | 11,100 | 14 % | 1,563 | 1 % |

| Yellowtail Flounder | | | | |
|---|---|---|---|---|
| Fishing Year | TAC (mt) | Catch (% of TAC) | Catch (mt) | Discards* (% of catch) |
| 2004 | 6,000 | 98 % | 5,852 | 8 % |
| 2005 | 4,260 | 88 % | 3,760 | 9 % |
| 2006 | 2,070 | 89 % | 1,851 | 29 % |
| 2007 | 900 | 109 % | 981 | 39 % |
| 2008 | 1,869 | 82 % | 1,531 | 28 % |
| 2009 | 1,617 | 109 % | 1,770 | 31 % |

* Note; yellowtail discard % includes groundfish and scallop fishery discards

**Table 19 – Summary of Numbers of Trips and DAS* in U.S./Canada Management Area**

| Fishing Year | Trips | | | Days-at-Sea | | |
|---|---|---|---|---|---|---|
| | Total | West | East | Total | West | East |
| 2004 | 1,910 | 1,424 | 468 | 9,805 | 7,808 | 1,997 |
| 2005 | 2,176 | 1,963 | 213 | 14,368 | 13,287 | 1,081 |
| 2006 | 1,579 | 1,295 | 284 | 9,282 | 7,907 | 1,375 |
| 2007 | 1,272 | 1,134 | 138 | 10,950 | 10,264 | 686 |
| 2008 | 1,273 | 559 | 714 | 8,990 | 4,804 | 4,186 |
| 2009 | 1,621 | 1,175 | 446 | 9,426 | 6,911 | 2,515 |

* A, B regular, and B reserve groundfish DAS

**Table 20 – Number of Distinct Vessels that Fished in the U.S./Canada Management Area**

| Fishing Year | Western Area | Eastern Area | East and West |
|---|---|---|---|
| 2004 | 159 | 110 | 162 |
| 2005 | 184 | 78 | 184 |
| 2006 | 155 | 92 | 161 |
| 2007 | 148 | 59 | 151 |
| 2008 | 126 | 92 | 147 |
| 2009 | 127 | 81 | 136 |

**Table 21 – Estimates of Observer Coverage in U.S./Canada Area (percent of trips)**

| Fishing Year | Approximate Percentage |
|---|---|
| 2006 | 19 % |
| 2007 | 26 % |
| 2008 | 29 % |
| 2009 | 23 % |

**Table 22 – Canadian Catch from Shared Georges Bank Stocks**

| Cod | | | | |
|---|---|---|---|---|
| | TAC (mt) | Catch (% of TAC) | Catch (mt) | **Discards** |
| 2004 | 1,000 | 111 % | 1,112 | unknown |
| 2005 | * 640 (740) | 98 % | 627 | unknown |
| 2006 | 1,326 | 109 % | 1,448 | 24 % |
| 2007 | * 1,275 (1,406) | 94 % | 1,195 | 125 mt from scallopers |
| 2008 | 1,633 | 94 % | 1,529 | 36 mt from scallopers |
| 2009 | 1,173 | 103 % | 1,209 | 69 mt from scallopers |
| 2010 * | **976 | | 291 | 32 |

* *Adjusted downward to account for previous year's overharvest

| Haddock | | | | |
|---|---|---|---|---|
| | TAC (mt) | Catch (% of TAC) | Catch (mt) | Discards |
| 2004 | 9,900 | 98 % | 9,745 | unknown |
| 2005 | 15,410 | 94 % | 14,483 | unknown |
| 2006 | 14,520 | 83 % | 12,054 | |
| 2007 | 12,728 | 94 % | 11,951 | 61 mt from scallopers |
| 2008 | 14,950 | 99 % | 14,815 | 33 mt from scallopers |
| 2009 | 18,900 | 93 % | 17,649 | 54 mt from scallopers |
| 2010 * | 17,612 | | 10,195 | 8 |

| Yellowtail Flounder | | | | |
|---|---|---|---|---|
| | TAC (mt) | Catch (% of TAC) | Catch (mt) | Discards |
| 2004 | 1,900 | < 1 % | 95 | unknown |
| 2005 | 1,740 | < 1 % | 29 | unknown |
| 2006 | 930 | 62 % | 580 | |
| 2007 | 350 | 38 % | 132 | 105 mt from scallopers |
| 2008 | 550 | 29 % | 158 | 117 mt from scallopers |
| 2009 | 483 | 18% | 87 | 84 mt from scallopers |
| 2010 * | 756 | | 197 | 182 mt from scallopers |

*As of August 20, 2010

**Table 23 – Summary of Georges Bank Yellowtail Flounder Catch by Scallop Fishery (based on NMFS/FSO end of fishing year summary reports for US/CA Area; includes both scallop access area and open areas on GB)**

| Year | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Landings | 2,000 lb | 16,000 lb | 1,100 lb | 10,000 lb | 5,000 (open area) |
| Discards | 470,000 lb | 949,000 lb | 417,000 lb | 475,000 lb (6,575,000 meat lb of scallop X 0.072 discard rate for USCA open access scallop trips) | 509,000 (open area: 172,000; (access area: 338,000) |
| Total | 472,000 lb | 966,000 lb | 419,000 lb | 485,000 lb | 514,000 |
| Groundfish GB Yellowtail TAC | 9,392,000 | 4,564,000 | 1,984,000 | 4,119,779 | 3,564,875 |
| % of TAC | 5% | 21% | 21% | 12 % | 14% |

**Table 24 – GB Yellowtail Catch from Scallop Access Fishery (from FSO website)**

| | Kept | Discarded | Total |
|---|---|---|---|
| 2009 CA II Scallop Access Area | 7,240 lb | 305,790 lb | 313,030 lb |
| 2007 CA I Scallop Access Area | 501 lb | 53,387 lb | 53,888 lb |
| 2006 CA II Scallop Access Area | 7,470 lb | 454, 842 lb | 462,312 |

### 6.2.6 Interaction between Gear and Target Species

The analysis of interactions between gear and allocated species is based on catch information for the Northeast Multispecies FMP Common Pool fishery from FY 1996 through FY 2006 as presented in GARM III. Historic landings for select target species by gear type from FY 1996 through FY 2006 (Table 25) show that the majority of fish of all species are caught with trawls. Only cod and white hake are caught in significant numbers by gillnets. Only haddock are caught in significant numbers by hook and line.

**Table 25 - Historic landings for groundfish species by gear type from Fishing Year 1996 to Fishing Year 2006 in metric tons (mt) as presented in GARM III.**

| Stock/species | Trawl | Large-mesh trawl discards | Small-mesh trawl discards | Gillnet | Gillnet discards | Hook/ line | Hook/ line discards | Scallop dredge | Scallop dredge discards | Other | Other discards | Total discards | Total landings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Georges Bank Cod | | 2,742 | 551 | | | | | | 170 | | | 2,862 | 73,806 |
| Georges Bank Haddock | 38,989 | 3,950 | | 883 | 61 | 2,461 | 380 | | 31 | 297 | | 4,423 | 42,626 |
| Georges Bank Yellowtail Flounder | | 1,280 | 134 | | | | | | 2,562 | | | 3,976 | 27,960 |
| So. New England/Mid-Atlantic Yellowtail Flounder | | 725 | 129 | | | | | | 1,119 | | | 1,972 | 7,968 |
| Gulf of Maine/Cape Cod Yellowtail Flounder | | 1,123 | 33 | | 510 | | | | 944 | | | 2,611 | 15,796 |
| Gulf of Maine Cod | 22,435 | 5,301 | | 17,532 | 4,036 | | | | | 3,639 | | 9,337 | 43,606 |
| Witch Flounder | | 1,911 | 469 | | | | | | | | 71 | 2,481 | 27,031 |
| American Plaice | | 3,059 | 1,237 | | | | | | | | 350 | 4,533 | 31,031 |
| Gulf of Maine Winter Flounder | 4,479 | 259 | 54 | 1,346 | 163 | | | | | 168 | | 476 | 5,993 |
| So. New England/Mid-Atlantic Winter Flounder[a] | | | | | | | | | | | | 1,481 | 31,146 |
| Georges Bank Winter Flounder | 18,202 | 169 | 47 | | | | | 210 | 418 | 135 | | 634 | 18,546 |
| White Hake | 22,532 | | | 9,355 | 239 | | | | | 2,191 | | 2,173 | 32,547 |

| Stock/species | Trawl | Large-mesh trawl discards | Small-mesh trawl discards | Gillnet | Gillnet discards | Hook/ line | Hook/ line discards | Scallop dredge | Scallop dredge discards | Other | Other discards | Total discards | Total landings |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pollock | | | | | | | | | | | | N/A | 51,568 |
| Acadian Redfish | | | | | | | | | | | | 6,200 | 4,115 |
| Ocean Pout[a] | | | | | | | | | | | | 5,165 | 207 |
| Gulf of Maine Haddock | 6,396 | 5 | 0.49 | 1,091 | 1 | | | | | 969 | 2 | | 8,456 |
| Atlantic Halibut [a] | | | | | | | | | | | | 157 | 138 |
| Gulf of Maine/Georges Bank Windowpane [a] | 1,966 | 3,584 | 403 | 4 | | | | 3 | 615 | 7 | | 4,850 | 1,978 |
| Southern New England/Mid-Atlantic Windowpane [a] | 1,071 | 1,762 | 433 | 3 | | | | 1 | 1,004 | 18 | | 3,197 | 1,093 |
| Atlantic Wolffish[b] | | | | | | | | | | | | | |

Notes:

[a] as adopted by the NEFMC June, 2009

[b] provisionally added to list of stocks not allocated

## *6.3 Other Species*

Species likely to be affected by the multispecies fishery include monkfish, skates, and spiny dogfish. These species have no allocation under the Northeast Multispecies FMP and are managed under separate FMPs. The discussion in this section is limited to these three groups of fish. Monkfish and skates are commonly landed when caught. Monkfish may be discarded when regulations or market conditions constrain the amount of the catch that could be landed. Spiny dogfish, which tend to be relatively abundant in catches, may be landed but are often the predominant component of the discarded bycatch.

### 6.3.1 Monkfish

**Life History:** Monkfish, *Lophius americanus*, also called goosefish, are distributed in the western North Atlantic from the Grand Banks and northern Gulf of St. Lawrence south to Cape Hatteras, North Carolina. Monkfish may be found from inshore areas to depths of at least 900 m. Seasonal onshore-offshore migrations occur and appear to be related to spawning and possibly to food availability.

Female monkfish begin to mature at age 4, and 50 percent of females are mature by age 5 (about 43 cm). Males mature at slightly younger ages and smaller sizes (50 percent maturity at age 4.2 or 36 cm). Spawning takes place from spring through early autumn, progressing from south to north, with most spawning occurring during the spring and early summer. Females lay a buoyant egg raft or veil which can be as large as 12 m long and 1.5 m wide, and only a few mm thick. The eggs are arranged in a single layer in the veil, and 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 8 cm.

**Population Management and Status:** Monkfish are currently regulated by the Monkfish FMP, which was implemented in 1999 (NEFMC and MAFMC 1998). The FMP was designed to stop overfishing and rebuild the stocks through a number of measures, including: 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; incidental catch possession limits for vessels not on a monkfish DAS; and a framework adjustment process.

The 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.

### 6.3.2 Skates

**Life History:** The seven species in the Northeast Region (Maine to Virginia) 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 most common skate in the Gulf of Maine, on Georges Bank, and in southern New England. In the Northeast Region, the center of distribution for the little and winter skates is Georges Bank and southern New England. The thorny and smooth skates are commonly found in the Gulf of Maine. The clearnose and rosette skates have a more southern distribution, and are found 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, moving offshore in summer and early autumn and returning inshore during winter and spring. Members of the skate family lay eggs that are 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:** The Skate FMP was implemented in September 2003 with a primary requirement for mandatory reporting of skate landings by species by both dealers and vessels. Possession prohibitions of barndoor, thorny, and smooth skates in the Gulf of Maine were also provisions of the FMP. Amendment 3 and the Environmental Impact Statement (EIS) to the Skate FMP updates and supplements the original EIS for the skate fishery and serves as a Stock Assessment and Fishery Evaluation (SAFE) Report (http://www.nefmc.org/skates/fmp/fmp.htm). Amendment 3 was developed by the Council to rebuild overfished skate stocks and implement ACLs and AMs consistent with the requirements of the reauthorized Magnuson-Stevens Act. Amendment 3 implements a rebuilding plan for smooth skate and establishes an ACL and annual catch target (ACT) for the skate complex, total allowable landings (TAL) for the skate wing and bait fisheries, seasonal quotas for the bait fishery, new possession limits, in season possession limit triggers, and other measures to improve management of the skate fisheries. Possession limit is 5,000 lb wing weight unless the vessel is in possession of a Skate Bait Letter of Authorization. To ensure that the skate wing TAL is not exceeded, when 80 percent of the annual skate wing TAL is landed, the 5,000–lb skate wing possession limit will be reduced to 500 lb wing weight for the remainder of the FY. A possession limit of 20,000 lb whole weight is implemented for vessels participating in the skate bait fishery that also possess a Skate Bait LOA.

Skate landings have been reported to be generally increasing since 2000. Due to insufficient information about the population dynamics of skates, there remains considerable uncertainty about the status of skate stocks. The landings and catch limits proposed by Amendment 3 have been reported to 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 is expected to cause skate biomass and future yield to increase.

### 6.3.3 Spiny Dogfish

**Life History:** Spiny dogfish, *Squalus acanthias*, are distributed in the western North Atlantic from Labrador to Florida and are considered to be a unit stock off the coast of New England. In summer, dogfish migrate northward to the Gulf of Maine-Georges Bank region and into Canadian waters and 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 80 cm, but can vary from 78 cm to 85 cm depending on the abundance of females.

**Population Management and Status:** The fishery is managed under a FMP developed jointly by the NEFMC and Mid Atlantic Fishery Management Council (MAFMC) for federal waters and a plan developed concurrently by the Atlantic States Marine Fisheries Commission for state waters. Spawning stock biomass of spiny dogfish declined rapidly in response to a directed fishery during the 1990s. Management measures, initially implemented in 2001, have been effective in reducing landings and reducing fishing mortality (MAFMC 2009). Overfishing is not presently considered to be occurring. A peer-review of the spiny dogfish stock in April 2010 concluded that the spawning stock biomass had been above the biomass target for two years and in June, the

Councils received a letter from the National Marine Fisheries Service (NMFS) indicating that the spiny dogfish stock was rebuilt. Amendment 3 to the Spiny Dogfish FMP is currently under development. The MAFMC has recommended a 20 million pound quota and a 3,000 pound trip limit for the 2011 fishing year for spiny dogfish, based on the allowable biological catch determination of the Council's Scientific and Statistical Committee. This quota represents a 33% increase from the 2010 level.

### 6.3.4 Interaction between Gear and Incidental Catch Species

The analysis of interactions between gear and non-allocated species and by catch is based on catch information for the Northeast Multispecies FMP Common Pool fishery from FY 1996 to FY 2006.

The Final Supplemental Environmental Impact Statement (FSEIS) to Amendment 2 (NEFMC and MAFMC 2003) evaluated the potential adverse effects of gears used in the directed monkfish fishery for monkfish and other federally-managed species and the effects of fishing activities regulated under other federal FMPs on monkfish. The two gears used in the directed monkfish fishery are bottom trawls and bottom gill nets which are described in detail in Section 1.2.1 of Appendix 2 to Amendment 2 to the Monkfish FMP (NEFMC and MAFMC 2003).

Regionally, skates are harvested in two very different fisheries, one for lobster bait and one for wings for food. Vessels tend to catch skates when targeting other species like groundfish, monkfish, and scallops and land them if the price is high enough. Therefore, gear interactions with skate can be expected in the conduct of fishing for groundfish. Detailed information about skate fisheries, gear and conduct can be found in Section 7.6 of the recent NEFMC Amendment to the Skate FMP and accompanying FSEIS (NEFMC 2009b).

Of the non-allocated target species considered in the EA, dogfish have the potential for an interaction with all gear types expected to be used by the groundfish fleet. Historic landings for non-allocated target species from FY 1996 to FY 2007 (Table 26) show that the majority of fish of all species are caught with otter trawls. Only cod and white hake are caught in significant numbers by gillnets. Only haddock are caught in significant numbers by hook and line.

**Table 26 - Historic Landings (mt) for other species by gear type from Fishing Year 1996 to Fishing Year 2006[a]**

| | Gear Type | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Trawl | | Gillnet | | Dredge | | Other Gear[b] | Total | |
| Species | land | discard | land | discard | land | discard | land | land | discard |
| Monkfish | 122,700 | 16,520 | 7,440 | 6,526 | 31,555 | 16,136 | 8,811 | 228,000 | 35,100 |
| Skates | 117,381 | 189,741 | 29,711 | 19,448 | 38,638 | -- | 4,413 | 151,505 | 247,827 |
| Dogfish | 24,368 | 61,914 | 72,712 | 39,852 | -- | -- | 946 | 98,026 | 101,766 |

Notes:

[a] monkfish 1997-2006, skates 1996-2006, dogfish 1996-2005

[b] discards not available for other gear

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

## *6.4 Protected Resources*

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

### 6.4.1 Species Present in the Area

Table 27 lists the species, protected either by the ESA, the MMPA, or both, may be found in the environment that would be utilized by the groundfish fishery.

**Table 27 – Species protected under the Endangered Species Act and Marine Mammal Protection Act that may occur in the operations area for the groundfish fishery**

| 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 |
| Northern bottlenose whale (*Hyperoodon ampullatus*) | Protected |
| Beaked whale (*Ziphius and Mesoplodon spp*.) | Protected |
| Pygmy or dwarf sperm whale (*Kogia spp.)* | Protected |
| Pilot whale (*Globicephala spp*.) | Protected |
| False killer whale (*Pseudorca crassidens*) | Protected |
| Melonheaded whale (*Peponocephala electra*) | Protected |
| Rough-toothed dolphin (*Steno bredanensis*) | Protected |
| Risso's dolphin (*Grampus griseus*) | Protected |
| White-sided dolphin (*Lagenorhynchus acutus*) | Protected |
| Common dolphin (*Delphinus delphis*) | Protected |
| Spotted and striped dolphins (*Stenella spp*.) | Protected |
| Bottlenose dolphin – Offshore stock (*Tursiops truncatus*)[a] | Protected |
| White-beaked dolphin (*Lagenorhynchus albirostris*) | Protected |
| Harbor Porpoise (*Phocoena phocoena*) | Protected |

Table 27 **(continued)**
**Species protected under the Endangered Species Act and Marine Mammal Protection Act that may occur in the operations area for the groundfish fishery.**

| Species | Status |
|---|---|
| **Sea Turtles** | |
| Leatherback sea turtle (*Dermochelys coriacea*) | Endangered |
| Kemp's ridley sea turtle (*Lepidochelys kempii*) | Endangered |
| Green sea turtle (*Chelonia mydas*) | Endangered[b] |
| Loggerhead sea turtle (*Caretta caretta*) | Threatened |
| **Fish** | |
| Shortnose sturgeon (*Acipenser brevirostrum*) | Endangered |
| Atlantic salmon (*Salmo salar*) | Endangered |
| **Pinnipeds** | |
| Harbor seal (*Phoca vitulina*) | Protected |
| Gray seal (*Halichoerus grypus*) | Protected |
| Harp seal (*Pagophilus groenlandicus*) | Protected |
| Hooded seal (*Cystophora cristata*) | Protected |

Note:

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

[b] 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 occurring in U.S. waters.

Two additional species of pinnipeds: Ringed seal (*Phoca hispida*) and the Bearded seal (*Erignathus barbatus*) are listed as candidate species under the ESA. The Northeastern U.S. is at the southern tip of the habitat range for both of these species. These species are rarely sighted off the northeastern U.S., although a few stranding records have been recorded in the Northeast Region, but sightings are rare in the Northeast Atlantic.

### 6.4.2 Species Potentially Affected

It is expected that the sea turtle, cetacean, and pinniped species discussed below have the potential to be affected by the operation of the multispecies fishery. Background information on the range-wide status of sea turtle and marine mammal species that occur in the area and are known or suspected of interacting with fishing gear (demersal gear including trawls, gillnets, and longline types) can be found in a number of published documents. These include sea turtle status reviews and biological reports (NMFS and USFWS 1995; Marine Turtle Expert Working Group (TEWG) 1998, 2000; NMFS and USFWS 2007a, 2007b; Leatherback TEWG 2007), 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. 2006; 2007; 2009), and other publications (e.g., Clapham et al. 1999, Perry et al. 1999, Best et al. 2001, Perrin et al. 2002).

Additional ESA background information on the range-wide status of these species and a description of critical habitat can be found in a number of published documents including recent sea turtle (NMFS and USFWS 1995, TEWG 2000, NMFS SEFSC 2001, NMFS and USFWS 2007a), loggerhead recovery team report (NMFS and USFWS 2008), status reviews and stock assessments, Recovery Plans for the humpback whale (NMFS 1991), right whale (NMFS 1991a, NMFS 2005), right whale EIS (August 2007), fin and sei whale (NMFS 1998b), and the marine mammal stock assessment report (Waring et al. 2008) and other publications (*e.g.*, Perry *et al.* 1999; Clapham *et al.* 1999; IWC 2001 *a*). A recovery plan for fin and sei whales is also available and may be found at the following web site http://www.NOAAFisheries.noaa.gov/prot_res/PR3/recovery.html (NOAA Fisheries unpublished).

#### 6.4.2.1 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. In general, turtles move up the coast from southern wintering areas as water temperatures warm in the spring (James et al. 2005a, 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). The trend is reversed in the fall as water temperatures cool. By December, turtles have passed Cape Hatteras, returning to more southern waters for the winter (James et al. 2005a, 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 are typically observed as far north as Cape Cod whereas the more cold-tolerant leatherbacks are observed 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).

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

#### 6.4.2.2 Large Cetaceans

The most recent Marine Mammal Stock Assessment Report (SAR) (Waring et al. 2009) reviewed the current population trend for each of these cetacean species within U.S. EEZ waters, as well as providing information on the estimated annual human-caused mortality and serious injury, and a description of the commercial fisheries that interact with each stock in the U.S. Atlantic. Information from the SAR is summarized below.

The western North Atlantic baleen whale species (North Atlantic right, humpback, fin, sei, and minke) follow a general annual pattern of migration from high latitude summer foraging grounds, including the Gulf and Maine and Georges Bank, to low latitude winter calving grounds (Perry et al. 1999, Kenney 2002). However, this is an oversimplification of species movements, and the complete winter distribution of most species is unclear (Perry et al. 1999, Waring et al. 2009). 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, Patrician et al. 2009). Blue whales are most often sighted on the east coast of Canada, particularly in the Gulf of St. Lawrence, and occurs only infrequently within the U.S. EEZ (Waring et al. 2002).

In comparison to the baleen whales, sperm whale distribution occurs more on the continental shelf edge, over the continental slope, and into mid-ocean regions (Waring et al. 2006). However, sperm whales distribution in U.S. EEZ waters also occurs in a distinct seasonal cycle (Waring et al. 2006). Typically, sperm whale distribution is 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).

For North Atlantic right whales, the available information suggests that the population is increasing at a rate of 1.8 percent per year during 1990-2003, and the total number of North Atlantic right whales is estimated to be at least 323 animals in 2003 (Waring et al. 2009). The minimum rate of annual human-caused mortality and serious injury to right whales averaged 3.8 per year during 2002 to 2006 (Waring et al. 2009). Of these, 1.4 per year resulted from fishery interactions. Recent mortalities included six female right whales, including three that were pregnant at the time of death (Waring et al. 2009).

The North Atlantic population of humpback whales is estimated to be 11,570, although the estimate is considered to be negatively biased (Waring et al. 2009). The best estimate for the Gulf of Maine stock of humpback whales is 847 whales (Waring et al. 2009). The population trend was considered positive for the Gulf of Maine population, but there are insufficient data to estimate the trend for the larger North Atlantic population. Based on data available for selected areas and time periods, the minimum population estimates for other western north Atlantic whale stocks are 2,269 fin whales, 207 sei whales, 4,804 sperm whales, and 3,312 minke whales (Waring et al. 2009). No recent estimates are available for blue whale abundance. Insufficient data exist to determine trends for any other large whale species.

The ALWTRP was recently revised with publication of a new final rule (72 FR 57104, October 5, 2007) that is intended to continue to address entanglement of large whales (right, humpback, fin, and minke) in commercial fishing gear and to reduce the risk of death and serious injury from entanglements that do occur.

It should also be noted that NMFS expects to propose changes to critical habitat designations of the North Atlantic right whale in 2011. At the time of writing, an announcement by the agency acknowledged that it is proceeding with the petition by working on a rule to propose revisions to the critical habitat designation for this species. "Critical habitat" is an area that contains physical or biological features that may require special management and that are essential to the conservation of the species. Three critical habitat areas currently exist, established in 1994, two of which are within the jurisdiction of the NEFMC; the feeding grounds in Cape Cod Bay and the Great South Channel.

#### 6.4.2.3 Small Cetaceans

Numerous small cetacean species (dolphins; pygmy and dwarf sperm whales; pilot and beaked, whales; and the harbor porpoise) occur within [the area from Cape Hatteras through the Gulf of Maine]. Seasonal abundance and distribution of each species in [Mid-Atlantic, Georges Bank, and/or Gulf of Maine] waters varies with respect to life history characteristics. Some species primarily occupy continental shelf waters (e.g., white sided dolphins, harbor porpoise), while others are found primarily in continental shelf edge and slope waters (e.g., Risso's dolphin), and still others occupy all three habitats (e.g., common dolphin, spotted dolphins, striped dolphins). Information on the western North Atlantic stocks of each species is summarized in Waring et al. (2009).

#### 6.4.2.4 Pinnipeds

Of the four species of seals expected to occur in the area, harbor seals have the most extensive distribution with sightings occurring as far south as 30° N (Katona et al. 1993, Waring et al. 2009). Gray seals are the second most common seal species in U.S. EEZ waters, occurring primarily in New England (Katona et al. 1993; Waring et al. 2009). Pupping for both species occurs in both U.S. and Canadian waters of the western north Atlantic with the majority of harbor seal pupping likely occurring in U.S. waters and the majority of gray seal pupping in Canadian waters, although there are at least three gray seal pupping colonies in U.S. waters as well. Harp and hooded seals are less commonly observed in U.S. EEZ waters. Both species form aggregations for pupping and breeding off eastern Canada in the late winter/early spring, and 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 (Waring et al. 2009).

#### 6.4.2.5 Species Not Likely to be Affected

The Gulf of Maine (GOM) Distinct Population Segment (DPS) of anadromous Atlantic salmon was initially listed by the USFWS and NMFS (collectively, the Services) as an endangered species on November 17, 2000 (65 FR 69459). A subsequent listing as an endangered species by the Services on June 19, 2009 (74 FR 29344) included an expanded range for the GOM DPS of Atlantic salmon.

Presently, the GOM DPS includes all anadromous Atlantic salmon whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River. Included are all associated conservation hatchery populations used to supplement these natural populations; currently, such conservation hatchery populations are maintained at Green Lake National Fish Hatchery (GLNFH) and Craig Brook National Fish Hatchery (CBNFH). Coincident with the June 19, 2009 endangered listing, NMFS designated critical habitat for the GOM DPS of Atlantic salmon (74 FR 29300; June 19, 2009). The critical habitat designation for the GOM DPS includes 45 specific areas occupied by Atlantic salmon at the time of listing that include approximately 19,571 km of perennial river, stream, and estuary habitat and 799 square km of lake habitat within the range of the GOM DPS and in which are found those physical and biological features essential to the conservation of the species. The entire occupied range of the GOM DPS in which critical habitat is designated is within the State of Maine.

At the time of this writing, a set of four public hearings on the proposed listing of Atlantic sturgeon under the endangered species act have been scheduled along the eastern seaboard.

NMFS has proposed that five populations along the east coast receive protection, after the 2007 formal status review. Two of the proposed five populations (Gulf of Maine and New York Bight) are in the areas managed by the NEFMC in which the groundfish fishery operates.

The action being considered in the 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. Shortnose sturgeon and salmon belonging to the Gulf of Maine DPS of Atlantic salmon occur within the general geographical areas fished by the multispecies fishery, but they are unlikely to occur in the area where the fishery operates given their numbers and distribution. Therefore, none of these species are likely to be affected by the groundfish fishery. The following discussion provides the rationale for these determinations. Although there are additional species that may occur in the operations area that are not known to interact with the specific gear types that would be used by the groundfish fleet, impacts to these species are still considered due to their range and similarity of behaviors to species that have been adversely affected.

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

The wild populations of Atlantic salmon found in rivers and streams from the lower Kennebec River north to the U.S. - Canada border are listed as endangered under the ESA. These populations include those in the Dennys, East Machias, Machias, Pleasant, Narraguagus, Ducktrap, and Sheepscot Rivers and Cove Brook. Juvenile salmon in New England rivers typically migrate to sea in May after a 2- to 3-year period of development in freshwater streams, and remain at sea for two winters before returning to their U.S. natal rivers to spawn. Results from a 2001 post-smolt trawl survey in Penobscot Bay and 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. 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 approval of this EA would affect the Gulf of Maine DPS of Atlantic salmon given that operation of the groundfish fishery would not occur in or near the rivers where concentrations of Atlantic salmon are likely to be found and groundfishing gear used by the fleet operates in the ocean at or near the bottom rather than near the water surface. Thus, this species is not 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. Since operation of the multispecies fishery would not occur in waters that are typically used by hawksbill sea turtles, it is highly unlikely that its operations would affect this turtle species.

Blue whales do not regularly occur in waters of the U.S. EEZ (Waring et al. 2009). In the North Atlantic, blue whales are most frequently sighted in the St. Lawrence from April to January (Sears 2002). No blue whales were observed during the Cetacean and Turtle Assessment Program (CeTAP) surveys of the mid- and north Atlantic areas of the outer continental shelf (CeTAP 1982). Calving for the species occurs in low latitude waters outside of the area where the groundfish fishery operates. Blue whales feed on euphausiids (krill) that are too small to be captured in fishing gear. Given that the species is unlikely to occur in areas where the groundfish fishery operates, and given that the operation of the fishery would not affect the availability of blue whale prey or areas where calving and nursing of young occurs, the Proposed Action would not be likely to adversely affect blue whales.

Unlike blue whales, sperm whales do regularly occur in waters of the EEZ. However, the distribution of the sperm whales in the EEZ occurs on the continental shelf edge, over the continental slope, and into mid-ocean regions (Waring et al. 2006). In contrast, the multispecies fishery would operate in continental shelf waters. The average depth of sperm whale sightings observed during the CeTAP surveys was 1792 m (CeTAP 1982). Female sperm whales and young males almost always inhabit open ocean, deep water habitat with bottom depths greater than 1000 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). Given that sperm whales are unlikely to occur in areas (based on water depth) where the groundfish fishery would operate, and given that the operation of the fishery would not affect the availability of sperm whale prey or areas where calving and nursing of young occurs, the Proposed Action would not be likely to adversely affect sperm whales.

Although large whales and marine turtles may be potentially affected through interactions with fishing gear, it is likely that the continued authorization of the multispecies fishery should not have any adverse effects on the availability of prey for these species. Right whales and sei whales feed on copepods (Horwood 2002, Kenney 2002). The multispecies fishery would not affect the availability of copepods for foraging right and sei whales because copepods are very small organisms that would 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 (e.g., sand lance, herring, 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 versus schooling fish such as herring and mackerel that occur within the water column. Therefore, the continued authorization of the multispecies fishery should likely not affect the availability of prey for foraging humpback or fin whales. Moreover, none of the turtle species are known to feed upon groundfish.

### 6.4.3 Interactions Between Gear and Protected Resources

Commercial fisheries are categorized by NMFS 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 stock. The system is based on the numbers of animals per year that incur incidental mortality or serious injury due to commercial fishing operations relative to a stock's Potential Biological Removal (PBR) level (the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population). Tier 1 takes into account the cumulative mortality and serious injury to marine mammals caused by commercial fisheries while Tier 2 considers marine mammal mortality caused by the individual fisheries; Tier 2 classifications are used in this EA to indicate how each type of gear proposed for use in the Proposed Action may affect marine mammals. Table 28

identifies the classifications used in the List of Fisheries (LOF) for FY 2011 (50 CFR 229), which are broken down into Tier 2 Categories I, II, and III).

**Table 28 – Descriptions of the Tier 2 Fishery Classification Categories**

| Category | Category Description |
|---|---|
| Tier 2, 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 potential biological removal (PBR) level. |
| Tier 2, 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. |
| Tier 2, Category III | A commercial fishery that has a remote likelihood of, or no known incidental mortality and serious injury of marine mammals. This classification indicates that a commercial fishery is one that collectively with other fisheries is responsible for the annual removal of:<br>a. Less than 50 percent of any marine mammal stock's PBR level, or<br>b. More than 1 percent of any marine mammal stock's PBR level, yet that fishery by itself is responsible for the annual removal of 1 percent or less of that stock's PBR level. In the absence of reliable information indicating the frequency of incidental mortality and serous 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 unintentional interactions with fishing gear. 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. Large and small cetaceans and sea turtles are more prevalent within the operations area during the spring and summer, although they are also relatively abundant during the fall and would have a higher potential for interaction with groundfish vessels 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 the winter.

Although interactions between deployed gear and protected species would vary, interactions generally include becoming caught on hooks (longlines), entanglement in mesh (gillnets and trawls), entanglement in the float line (gillnets and trawls), entanglement in the groundline (gillnets, trawls, and longlines), entanglement in anchor lines (gillnets and longlines), or entanglement in the vertical lines that connect gear to the surface and surface systems (gillnets,

trawls, and longlines). Entanglements are assumed to occur with increased frequency in areas where more gear is set and in areas with higher concentrations of protected species.

Table 29 lists the marine mammals known to have had interactions with sink gillnets, bottom trawls, and bottom longlines within the Gulf of Maine and Georges Bank, as excerpted from the proposed LOF for FY 2011 (also see Waring et al. 2009). Northeast sink gillnets have the greatest potential for interaction with protected resources, followed by bottom trawls. Impacts to protected resources through interaction with bottom longline gear are not known within the operations area; 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 29 – Marine Mammals Impacts Based on Groundfishing Gear and Northeast Multispecies Fishing Areas (Based on 2011 List of Fisheries)**

| Fishery | | Estimated Number of Vessels/Persons | Marine Mammal Species and Stocks Incidentally Killed or Injured |
|---|---|---|---|
| **Category** | **Type** | | |
| Tier 2, Category I | Mid-Atlantic gillnet | 5,495 | Bottlenose dolphin, Northern Migratory costal<br>Bottlenose dolphin, Southern Migratory costal<br>Bottlenose dolphin, Northern NC estuarine system<br>Bottlenose dolphin, Southern NC estuarine system<br>Bottlenose dolphin, WNA, offshore<br>Common dolphin, WNA<br>Gray seal, WNA<br>Harbor porpoise, GME/BF<br>Harbor seal, WNA<br>Harp seal, WNA<br>Humpback whale, Gulf of Maine<br>Long-finned pilot whale, WNA<br>Minke whale, Canadian east coast<br>Short-finned pilot whale, WNA<br>White-sided dolphin, WNA |
| Tier 2, Category I | Northeast sink gillnet | 7,712 | Bottlenose dolphin, WNA, offshore<br>Common dolphin, WNA<br>Fin whale, WNA<br>Gray seal, WNA<br>Harbor porpoise, GME/BF<br>Harbor seal, WNA<br>Harp seal, WNA<br>Hooded seal, WNA<br>Humpback whale, Gulf of Maine<br>Minke whale, Canadian east coast<br>North Atlantic right whale, WNA<br>Risso's dolphin, WNA<br>White-sided dolphin, WNA |

| Fishery | | Estimated Number of Vessels/Persons | Marine Mammal Species and Stocks Incidentally Killed or Injured |
|---|---|---|---|
| **Category** | **Type** | | |
| Tier 2, Category II | Mid-Atlantic bottom trawl | 1,182 | Bottlenose dolphin, WNA offshore<br>Common dolphin, WNA<br>Long-finned pilot whale, WNA<br>Risso's dolphin, WNA<br>Short-finned pilot whale, WNA<br>White-sided dolphin, WNA |
| | Northeast bottom trawl | 1,635 | Common dolphin, WNA<br>Harbor porpoise, GME/BF<br>Harbor seal, WNA<br>Harp seal, WNA<br>Long-finned pilot whale, WNA<br>Short-finned pilot whale, WNA<br>White-sided dolphin, WNA |
| | Atlantic mixed species trap/pot | 1,912 | Fin whale, WNA<br>Humpback whale, Gulf of Maine |
| Tier 2, Category III | Northeast/Mid-Atlantic bottom longline/hook-and-line | 1,183 | None documented in the most recent 5 years of data |

To minimize potential impacts to certain cetaceans, multispecies fishing vessels would be required to adhere to measures in the ALWTRP, which was developed to reduce the incidental take of large whales, specifically the right, humpback, fin, and minke whales in specific Category I or II commercial fishing efforts that utilize traps/pots and gillnets. The ALWTRP calls for the use of gear markings, area restrictions, and use of weak links, and neutrally buoyant groundline. Fishing vessels would be required to implement the ALWTRP in all areas where gillnets were used. In addition, the HPTRP would be implemented in the Gulf of Maine to reduce interactions between the harbor porpoise and gillnets; the HPTRP implements gear specifications, seasonal area closures, and in some cases, the use of pingers (acoustic devices that emit a loud sound) to deter harbor porpoises, and other marine mammals, from approaching the nets.

Although sea turtles have been caught and injured or killed in multiple types of fishing gear, including gillnets and hook and line fishing, mortalities from these gear types account for only about 50 percent of the mortalities associated with trawling gear (NMFS 2009c). 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). Sea turtles generally occur in more temperate waters than those in the Northeast multispecies area. Gillnets are considered more detrimental to marine mammals such as pilot whales, dolphins, porpoises, and seals, as well as large marine whales; however, protection for marine mammals would be provided through various Take Reduction Plans outlined above.

## *6.5 Human Communities and the Fishery*

This EA considers changes to the multispecies FMP and evaluates the effect such changes 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. Although it is possible that social impacts would be solely experienced by individual fishery participants, it is more likely that impacts would be experienced across communities, gear cohorts, 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 fishery participants as well as their homeports.

### 6.5.1 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. The Northeast Multispecies FMP (large-mesh and small-mesh) includes a total of 13 large-mesh 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 Atlantic wolffish) harvested from three geographic areas (Gulf of Maine, Georges Bank, and Mid-Atlantic Bight/southern New England) representing twenty 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 19$^{th}$ century, the fleet also began to focus on Atlantic halibut with landings peaking in 1896 at around 4,900 tons.

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. Foreign effort levels remained elevated until the passage of the Magnuson Fishery Conservation and Management Act in 1976. Early in this time period, landings of the principal groundfish (cod, haddock, pollock, hake, and redfish) peaked at about 650,000 tons. However, by the 1970's, landing decreased sharply to between 200,000 and 300,000 tons as the previously virgin GB stocks were exploited (NOAA 2007).

The exclusion of the foreign fishermen in 1976, coupled with technological advances 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 continued to trend

downward from about 200,000 tons to about 100,000 tons through the mid 1980s (NOAA 2007). In 1986, NEFMC implemented the Northeast Multispecies FMP with the goal of rebuilding stocks. From that time, 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, landing decreased throughout the latter part of the 1980s until reaching a more or less constant level of around 40,000 tons annually since the mid 1990's.

In 2004, the final rule implementing Amendment 13 to the FMP allowed for self-selected groups of limited access groundfish permit holders to form sectors. These sectors develop a legally binding operations plan and operate under an Annual Catch Entitlement (ACE) – a quota that limits catch. The 2004 rule also authorized implementation of the first sector, the Georges Bank Cod Hook Sector and in 2006 a second sector, the Georges Bank Cod Fixed Gear Sector, was authorized. While approved sectors are subject to general requirements specified in Amendment 16 in exchange for operating under an ACE, sector members are exempt from DAS and some of the other effort control measures that tended to limit the flexibility of fishermen.

Through Amendment 16, 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 announced 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 2009a). Amendment 16 was then implemented on May 1, 2010 and a much higher percentage of participants in the fishery fished in one of 19 approved sectors.

In 2007, the Northeast multispecies fishery included 2,515 permits, about 1,500 of which are limited access, and about 690 active fishing vessels. 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 Georges Bank Cod Sectors. The remaining vessels were Common Pool groundfishing vessels. In 2010, roughly half of all groundfish vessels were members of sectors; these permits, however, constituted the majority of effort and landings.

There are over 100 communities that are homeport to one or more Northeast groundfishing vessels. These ports are distributed throughout the coastal northeast and in New Jersey. Vessels from these ports pursue stocks in three geographic regions: Gulf of Maine, Georges Bank, and southern New England. In 2009, the estimated dockside value of these groundfish landings was slightly less than $60 million.

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 an important alternative occupation in these port areas, tourism, is largely seasonal.

There is little hard socio-economic data upon which to evaluate the regional- or 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. The perceived importance of these economic interrelationships is reflected by the creation of the

Cape and Islands Regional Competitiveness Council, government recommendations that NEFMC begin compiling the data necessary to evaluate the importance of the fishery to the regional economy, and the inclusion of social and economic impact analysis in the NEFMC research priorities and data needs 2009-2013.

### 6.5.2 Multispecies Fleet Home Ports

Each of these ports is described below (in alphabetic order). The primary source of information for these descriptions is 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).

#### 6.5.2.1 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, of which only 48.4 square miles (54 percent) is land.

##### 6.5.2.1.1 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 1900s, 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 United States (BHA No Date) and home to the nation's oldest daily fish auction.

##### 6.5.2.1.2 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 30). 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 docked in Boston Harbor live elsewhere (Table 31). 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 here.

**Table 30 – 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 31 – 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 |

### 6.5.2.2 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 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 of coastline for the town (TPL 2007). Cundy's Harbor is located on the tip of Great Island (USGS 2008).

#### 6.5.2.2.1 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's 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 here during the 1800s, 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 here but work in Portland, 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).

#### 6.5.2.2.2 Commercial Fishing

There are multiple commercial wharves here 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 32). Landings in the "Other" species grouping were also significant, with the 10-year average greater than the 2006 value. 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 33). The level of homeport fishing for Cundy's Harbor was consistently lower than the level of landings here 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 32 – Commercial Fishing Trends in Cundy's Harbor**

| Year | Number of vessels with Cundy's Harbor homeport | Number of vessels whose owner receives mail in Cundy's Harbor | Value of landings among vessels homeported in Cundy's Harbor[a] | Value of fisheries landed in Cundy's Harbor[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 33 – Dollar Value of Federally Managed Groups Landed in Cundy's Harbor**

| 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 |
| Dogfish | $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.

### 6.5.2.3 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 northeast of Boston and 16 miles northeast of Salem. The area encompasses 41.5 square miles of territory, of which 26 square miles is land (USGS 2008).

#### 6.5.2.3.1 History

The history of Gloucester has revolved around the fishing and seafood industries since its settlement in 1623. By the mid 1800s, 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. As in many communities, after the U.S. passed the Magnuson Fishery Conservation and Management Act of 1976 and foreign vessels were prevented from fishing within the EEZ, Gloucester's fishing fleet soon increased -- 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).

#### 6.5.2.3.2 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 13$^{th}$ highest landings in the U.S. (over 39,000 tons) and the nation's ninth highest landing value in 2002 ($41.2 million). Gloucester's federally managed group with the highest landed value was large-mesh groundfish worth nearly $20 million in 2006 (Table 34). 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 (federal) decreased slightly from 1997 to 2006 (Table 35).

**Table 34 – 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 35 – 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 | 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.

### 6.5.2.4 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 south of Boston (State of Massachusetts 2006), and has a total area of 24 square miles, of which about 4 square miles (16.2 percent) is water (USGS 2008).

#### 6.5.2.4.1 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 1920s.

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. EPA as a superfund site due to the presence of metals, organic compounds, and PCBs.

#### 6.5.2.4.2 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 (Table 36). However, over that same time the value of groundfish landings decreased approximately 20 percent (Table 37).

**Table 36 – 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 37 – 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.

In addition to the commercial fleet, New Bedford has approximately 44 fish wholesale companies, 75 seafood processors, and about 200 shore-side industries (Hall-Arber 2001). This core seafood industry supports 2,600 local jobs, which represents 45 percent of employment in the seafood harvesting sector in Massachusetts (State of Massachusetts 2002).

#### 6.5.2.5 Newport, Rhode Island

Newport, Rhode Island (41.50°N, 71.30°W) is located at the southern end of Aquidneck Island in Newport County (USGS 2008). The city is located 60 miles from Boston, Massachusetts, and about 187 miles from New York City.

##### 6.5.2.5.1 History

English settlers founded Newport in 1639 (City of Newport No Date). Although Newport's port is now mostly dedicated to tourism and recreational boating, it has had a long commercial fishing presence. In the mid 1700s, Newport was one of the five largest ports in colonial North America. Until Point Judith's docking facilities were developed, Newport was the center for fishing and shipping in Rhode Island (Hall-Arber et al. 2001; RIEDC 2008).

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 1930s when the fishery collapsed. At this time, the fishing industry shifted to groundfish trawling. The

use of the diesel engine, beginning in the 1920s, facilitated fishing farther from shore than was done in prior years (Hall-Arber et al. 2001).

#### 6.5.2.5.2 Commercial Fishing

Of the federal landed species, scallop had the highest value in 2006, at over $13 million. The average value of scallop landings for 1997-2006 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, 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 (Table 38). The value of landings for homeported vessels in Newport was relatively consistent from 1997-2006, with a high of just under $8 million in 2003 (Table 39). The level of landings in Newport was steady from 1997-2004, 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. The number of vessels with owners living in Newport increased from 13 in 1997 to 18 in 2006 indicating that most vessels homeported in Newport have owners residing in other communities.

**Table 38 - Dollar Value of Federally-Managed Groups Landed in Newport**

| Federal Group | Average from 1997-2006[d] | 2006 only[d] |
|---|---|---|
| Lobster | $2,578,908 | $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 |
| Tilefish | $9,230 | $1,213 |

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 39 - Commercial Fishing Trends in Newport**

| Year | Number of vessels with Newport homeport | Number of vessels whose owner receives mail in Newport | Value of landings among vessels homeported 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.

### 6.5.2.6 Portland Harbor, Maine

The city of Portland, Maine (43.66 N, 70.2 W) has 56.9 miles of coastline (Sheehan and Copperthwaite 2002), a terrestrial area of 54.9 square miles, and 31.4 square miles 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 (MapQuest 2006). Portland is the largest city in Maine and has the highest population in New England north of Boston.

#### 6.5.2.6.1 History

The city's port industries have driven its economy since its settlement. From the mid-1800s 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. Although tourism plays a major role in the city's economy, Portland functions as the second largest oil port on the east coast of the U.S., and as valuable fishing port (Monroe No Date). For a more detailed history of Portland and the surrounding fishing communities, refer to Hall Arber et al. (2001).

#### 6.5.2.6.2 Commercial Fishing

Portland's landings come primarily from the large-mesh groundfish species and from lobster, with over $14 million and $12 million respectively over the 10-year average (Table 40). Monkfish and herring are also important species. There was also a variety of other species landed in Portland between the years 1997-2006. 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 about $13 million. The level of fishing landed experienced a similar trend, with a dip from 2005 to 2006 of over $6 million (Table 41).

**Table 40 - 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]. "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 41- Commercial Fishing Trends in Portland**

| Year | Number of vessels with Portland homeport | Number of vessels whose owner receives mail in Portland | Value of landings among vessels homeported in Portland [a] | Value of fisheries landed in Portland [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.

### 6.5.2.7 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 DHR 2006). Portsmouth is located along the state's seaboard that only totals about 18 miles.

#### 6.5.2.7.1 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 1600s. By 1725, Portsmouth was a thriving commercial port, exporting timber products and importing a wide range of goods (Wallace 2006). However, the 1800s 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 United States 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).

#### 6.5.2.7.2 Commercial Fishing

Large-mesh groundfish and monkfish were the most valuable landings in Portsmouth between the years 1997 and 2006 (Table 42). 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; lobster landings had increased considerably, however, 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 43).

**Table 42 - 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 43 – 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 |

## 6.5.3 Economic Status of Commercial Harvesting Sector

### 6.5.3.1 Commercial Harvesting Sector Data Caveats

**Data Sources**
NMFS Dealer Database
NMFS Permit Database
NMFS Enforcement Database
NMFS Observer Database

**Reported Numbers of Vessels**
When evaluating the number of vessels reported in any given table in the following sections it is necessary to understand exactly which vessels those numbers represent. Depending on the way in which the data were queried, a different number of vessels will emerge. In each of the following sections, there are two tables describing the landings and revenues of vessels permitted in the multispecies fishery. The first is associated with total landings by permitted multispecies vessels. In this table, the number given for each fishing year is the quantity of vessels which possess multispecies permits and were active in *any* fishery, which may or may not include the regulated multispecies fishery, in that given fishing year. The second table is associated with groundfish landings only. In this table, the number given for each fishing year is the landings of vessels which possess multispecies permits and were active in the *groundfish* fishery, having landed at least one pound of regulated groundfish, in that given fishing year. In all sections, the fishing activity discussed is associated only with vessels that hold a multispecies permit--one large-mesh limited access multispecies permit *OR* one or more open access multispecies permits.

### 6.5.3.2 DAS Allocations and Use

One of the principal management measures used to control groundfish fishing mortality is limits on the amount of time (days-at-sea, or DAS) that permit holders can fish for regulated groundfish. Most permits are allocated a fixed number of DAS. As mentioned previously, Amendment 13 reduced overall DAS allocations and categorizes DAS into four categories. Category A DAS can be used to fish for any regulated groundfish stock and are similar to the DAS that were allocated before Amendment 13. Category B (regular) and (reserve) DAS can only be used to target healthy groundfish stocks within specific management programs that include controls on the incidental catch of unhealthy stocks. Category C DAS cannot be used until some point in the future. FW 42 reduced the number of Category A DAS to permit holders, and increased the number of Category B DAS by the same amount. This change reduced the number of Category A DAS available to each permit by 8.3 percent. Amendment 16, in turn, changed the way DAS are used in the fishery. That action split the fishery into two segments starting in FY 2010: sector vessels, which are still allocated DAS but are only required to use them to fish non-groundfish species (such as monkfish or skates), and common pool vessels, which use Category A DAS as described above but saw a fifty percent reduction in their allocation of days.

Interpreting the relationship of DAS data to actual time spent fishing is complicated by changes in how DAS were tracked and charged. After FY 1996, most limited access permits were required to use DAS, and they were tracked through calls made by the vessel operator prior to sailing and upon return. When trip limits were imposed that were based on DAS charged, some vessel operators would either start their clock before leaving the dock or would let the clock run after returning. Day gillnet vessels were charged a minimum of fifteen hours for any trip longer than three hours, regardless of time spent fishing. By FY 2004, the number of vessels using a Vessel Monitoring System (VMS) increased, and by FY 2006 all DAS vessels were required to use this equipment. VMS does not start tracking DAS until a vessel crosses a demarcation line that is outside the port, as opposed to when the vessel left the dock as under the call-in system. FY 2004 also marked the start of a program that does not charge DAS for vessels transiting to fish only in the Eastern U.S./Canada area. Starting in FY 2006, in some areas DAS were charged at a differential rate to reduce effort in those areas. Finally, since FY 2010 common pool vessels have their DAS charged in 24-hour increments (i.e. a 3-hour trip counts as 24 hours). The information in the following tables represents DAS charged and takes into account differential DAS, transit time to the Eastern U.S./Canada area that is not charged DAS, etc.

**Total DAS Use**
While the total number of days allocated to all vessels remained relatively constant from 2005-2007 and then decreased in 2008 and 2009, the number of DAS used was actually similar in all years, ranging from 30,847 in 2008 to 32,804 in 2007. This means that the percentage of allocated DAS that was used increased greatly in 2008 and 2009. The number of vessels using DAS decreased slightly every year, from 685 in 2005 to 469 in 2009.

**DAS Use by Multispecies Permit Category**
From FY 2005 through FY 2009, the Individual Category vessels were allocated and used the greatest number of DAS of all the permit categories by a large margin (Table 44). In FY 2009, 95.5% of all DAS were used by Individual DAS vessels. The days used by Individual vessels also mirrored the total DAS used in that it was roughly constant from 2005-2007 and then decreased in 2008 and 2009. The percentage of allocated days that were actually used by Individual DAS vessels increased in 2008 and 2009.

Other vessels categories, however, saw different use patterns. Hook gear saw a decrease in total DAS used throughout the time series. Large Mesh and Combination permits fluctuated greatly in use, while Large Mesh decreased in allocation throughout. The Small Vessel Exemption Category first increased, then decreased slightly in both allocation and use.

**DAS Use by Length Class**
The DAS use by length classes generally varied throughout the time series (Table 45). Vessels with a length of 30-49 feet had the most DAS allocated (the allocation declined slightly from 22,350 in 2005 to 17,088 in 2009), but used a similar number as vessels 50-74 feet in length in the years 2005 through 2007. In 2008 and 2009, the 30-49 ft. vessels used substantially more DAS than those 50-74 ft. The largest (75+ ft.) and smallest (1-29 ft.) vessels fluctuated in both allocation and use.

Generally, larger vessels used a higher percentage of their allocated DAS in all years. The smallest vessels used a tiny percentage of their allocated DAS (2.1% in 2009), while the largest vessels used 90.2% in 2009.

**DAS Use by Home Port State**
Table 46 describes DAS use by homeport state, as reported on the vessel's permit application. These data illustrate the relative changes in the distribution of fishing activity on a regional basis.

From 2005 through 2009, it is difficult to characterize DAS use by home port state because of wide variations in allocations and use among states. DAS allocations were generally less in most states in 2008 and 2009 than in previous years. Allocation in New York saw a particularly large decrease. The large states of Massachusetts and Maine experienced a large decrease in the number of vessels that called in to use DAS throughout the period, while New Hampshire remained more constant and Rhode Island decreased only in the final years. Total DAS used actually increased in Massachusetts and New Hampshire, and Maine and Rhode Island experienced slight decreases and increases followed by a larger decrease in 2008 and 2009.

**DAS Use by Gear Type**
For this discussion, refer to Table 47. Primary gear is listed on the permit application and may not match the gear actually used on a given trip.

Bottom Trawl:
In FY 2005 there were 456 active vessels in the bottom trawl sector, 60% of the total number of permitted bottom trawl vessels. The number and percentage of active vessels decreased over the next four years, reaching 298 vessels and 41% of permitted vessels that were active in FY 2009. DAS use by bottom trawl vessels generally remained constant from 2005-2007 and decreased in 2008-2009. 67% of the DAS allocated to active permitted bottom trawl vessels were used by these vessels in FY 2005 (including through leasing) and 81% of allocated DAS were used by active bottom trawl vessels in FY 2009.

Bottom Longline:
In FY 2005 there were 42 active vessels in the bottom longline sector, 31% of the total number of permitted bottom longline vessels. The percentage of active vessels decreased over the next four years, reaching 24% in FY 2009. DAS use by bottom longline vessels generally decreased from 918 days in FY 2005 to 641 days in FY 2009. 31% of the DAS allocated to active permitted bottom longline vessels were used by these vessels in FY 2005 (including through leasing) and 47% of allocated DAS were used by active bottom longline vessels in FY 2009.

Handline:
In FY 2005 there were 18 active vessels in the handline sector, 30% of the total number of permitted handline vessels. The percentage of active vessels decreased over the next six years, reaching 11%, or only 7 vessels, in FY 2009. DAS use by handline vessels generally decreased from FY 2005 to FY 2009. 32% of the DAS allocated to active permitted handline vessels were used by these vessels in FY 2005 (including through leasing) and 21% of allocated and net leased DAS were used by active handline vessels in FY 2009.

Sink Gillnet:
In FY 2005 there were 139 active vessels in the sink gillnet sector, 54% of the total number of permitted sink gillnet vessels. The percentage of active vessels remained relatively constant over the next four years, reaching 58% in FY 2009. DAS use by sink gillnet vessels increased steadily throughout the FY 2005-FY 2009 time period. 66% of the DAS allocated to active permitted sink gillnet vessels were used by these vessels in FY 2005 and 95% of allocated and net leased DAS were used by active sink gillnet vessels in FY 2007.

**Table 44 - Multispecies Limited Access A Days-at-Sea Used by Multispecies Permit Category, Fishing Years 2005 - 2009**

| Categories | | Total Number of Permitted Vessels | Total Days-at-Sea Allocated | Number of Permitted Vessels that Called In | DAS Allocated to Vessels that Called In | DAS Allocated and Net Leased to Vessels that Called In | Total DAS Used |
|---|---|---|---|---|---|---|---|
| **2005** | Individual | 1,128 | 45,969 | 619 | 34,529 | 41,022 | 29,898 |
| | Combination | 46 | 649 | 11 | 472 | 485 | 423 |
| | Hook Gear | 94 | 1,682 | 31 | 1,119 | 1,105 | 387 |
| | Large Mesh | 44 | 1,680 | 24 | 1,127 | 1,540 | 1,064 |
| | Small Vessel Exemption | 8 | 38 | 0 | 0 | 0 | 0 |
| | **Total** | **1,320** | **50,018** | **685** | **37,247** | **44,152** | **31,773** |
| **2006** | Individual | 1,107 | 46,240 | 568 | 31,184 | 40,137 | 30,072 |
| | Combination | 47 | 439 | 3 | 189 | 169 | 157 |
| | Hook Gear | 82 | 2,413 | 22 | 1,472 | 1,479 | 337 |
| | Large Mesh | 41 | 1,692 | 32 | 1,261 | 1,631 | 1,229 |
| | Small Vessel Exemption | 7 | 37 | 0 | 0 | 0 | 0 |
| | **Total** | **1,284** | **50,820** | **625** | **34,106** | **43,416** | **31,794** |
| **2007** | Individual | 1,099 | 45,835 | 524 | 28,721 | 40,637 | 31,595 |
| | Combination | 47 | 415 | 5 | 204 | 296 | 234 |
| | Hook Gear | 79 | 2,287 | 19 | 1,277 | 1,265 | 270 |
| | Large Mesh | 33 | 1,034 | 25 | 956 | 990 | 693 |
| | Small Vessel Exemption | 13 | 138 | 1 | 12 | 12 | 12 |
| | **Total** | **1,271** | **49,710** | **574** | **31,170** | **43,200** | **32,804** |
| **2008** | Individual | 1,037 | 41,258 | 474 | 24,369 | 36,102 | 29,354 |
| | Combination | 46 | 517 | 5 | 219 | 393 | 369 |
| | Hook Gear | 74 | 1,216 | 9 | 435 | 393 | 115 |
| | Large Mesh | 31 | 883 | 23 | 769 | 842 | 963 |
| | Small Vessel Exemption | 12 | 97 | 1 | 12 | 12 | 46 |
| | **Total** | **1,200** | **43,971** | **512** | **25,805** | **37,743** | **30,847** |
| **2009** | Individual | 1,017 | 35,300 | 433 | 19,251 | 32,568 | 29,469 |
| | Combination | 47 | 548 | 5 | 207 | 432 | 343 |
| | Hook Gear | 74 | 943 | 11 | 435 | 435 | 122 |
| | Large Mesh | 30 | 780 | 19 | 570 | 736 | 906 |
| | Small Vessel Exemption | 11 | 86 | 1 | 10 | 10 | 26 |
| | **Total** | **1,179** | **37,656** | **469** | **20,472** | **34,181** | **30,867** |

*These data include multispecies/monkfish DAS trips (in which the multispecies and monkfish clocks run concurrently).
Permits are limited access multispecies permits that were active on the last day of the fishing year.
DAS Allocated is multispecies A DAS net allocation after including base and carry over, NOT leased.
Source: Permits Database and AMS Database

**Table 45 - Multispecies Limited Access A Days-at-Sea Used by Vessel Size, Fishing Years 2005 - 2009**

| Categories | | Total Number of Permitted Vessels | Total Days-at-Sea Allocated | Number of Permitted Vessels that Called In | DAS Allocated to Vessels that Called In | DAS Allocated and Net Leased to Vessels that Called In | Total DAS Used |
|---|---|---|---|---|---|---|---|
| **2005** | 1 - 29 feet | 178 | 2,018 | 18 | 518 | 536 | 117 |
| | 30 - 49 feet | 670 | 22,350 | 350 | 17,166 | 19,139 | 11,924 |
| | 50 - 74 feet | 320 | 16,727 | 221 | 12,888 | 15,778 | 12,088 |
| | 75+ feet | 152 | 8,923 | 96 | 6,675 | 8,700 | 7,645 |
| | **Total** | **1,320** | **50,018** | **685** | **37,247** | **44,152** | **31,773** |
| **2006** | 1 - 29 feet | 216 | 3,500 | 8 | 420 | 420 | 75 |
| | 30 - 49 feet | 621 | 22,827 | 336 | 16,470 | 19,702 | 12,536 |
| | 50 - 74 feet | 300 | 16,416 | 202 | 11,858 | 15,523 | 12,012 |
| | 75+ feet | 147 | 8,077 | 79 | 5,358 | 7,771 | 7,171 |
| | **Total** | **1,284** | **50,820** | **625** | **34,106** | **43,416** | **31,794** |
| **2007** | 1 - 29 feet | 261 | 3,560 | 6 | 357 | 347 | 56 |
| | 30 - 49 feet | 577 | 22,163 | 308 | 15,423 | 19,721 | 13,042 |
| | 50 - 74 feet | 287 | 15,570 | 178 | 10,181 | 14,831 | 12,010 |
| | 75+ feet | 146 | 8,416 | 82 | 5,208 | 8,301 | 7,696 |
| | **Total** | **1,271** | **49,710** | **574** | **31,170** | **43,200** | **32,804** |
| **2008** | 1 - 29 feet | 274 | 3,096 | 4 | 213 | 198 | 17 |
| | 30 - 49 feet | 530 | 19,747 | 277 | 12,298 | 17,426 | 13,462 |
| | 50 - 74 feet | 257 | 13,017 | 158 | 8,615 | 12,267 | 10,150 |
| | 75+ feet | 139 | 8,111 | 73 | 4,679 | 7,852 | 7,219 |
| | **Total** | **1,200** | **43,971** | **512** | **25,805** | **37,743** | **30,847** |
| **2009** | 1 - 29 feet | 300 | 1,956 | 3 | 128 | 179 | 41 |
| | 30 - 49 feet | 496 | 17,088 | 258 | 10,117 | 15,938 | 14,323 |
| | 50 - 74 feet | 247 | 10,985 | 140 | 6,400 | 10,597 | 9,627 |
| | 75+ feet | 136 | 7,626 | 68 | 3,827 | 7,468 | 6,876 |
| | **Total** | **1,179** | **37,656** | **469** | **20,472** | **34,181** | **30,867** |

*These data include multispecies/monkfish DAS trips (in which the multispecies and monkfish clocks run concurrently).
Permits are limited access multispecies permits that were active on the last day of the fishing year.
DAS Allocated is multispecies A DAS net allocation after including base and carry over, NOT leased.
Source: Permits Database and AMS Database

**Table 46 – Multispecies Limited Access A Days-at-Sea Used by Homeport State, FY 2005 - 2009**

| State (Homeport) | | Total Number of Permitted Vessels | Total Days-at-Sea Allocated | Number of Permitted Vessels that Called In | DAS Allocated to Vessels that Called In | DAS Allocated and Net Leased to Vessels that Called In | Total DAS Used |
|---|---|---|---|---|---|---|---|
| **2005** | Maine | 200 | 8,206 | 91 | 5,479 | 7,412 | 5,731 |
| | New Hampshire | 73 | 3,302 | 45 | 2,608 | 3,029 | 2,217 |
| | Massachusetts | 675 | 29,306 | 385 | 21,669 | 25,878 | 18,734 |
| | Rhode Island | 114 | 3,859 | 68 | 3,505 | 3,675 | 2,661 |
| | Connecticut | 19 | 635 | 12 | 535 | 535 | 258 |
| | New York | 111 | 2,363 | 47 | 1,741 | 1,905 | 1,094 |
| | New Jersey | 80 | 1,387 | 24 | 1,020 | 969 | 450 |
| | Other | 48 | 961 | 13 | 689 | 750 | 629 |
| | **Total** | **1,320** | **50,018** | **685** | **37,247** | **44,152** | **31,773** |
| **2006** | Maine | 202 | 8,928 | 85 | 5,389 | 7,223 | 5,173 |
| | New Hampshire | 73 | 3,176 | 37 | 2,117 | 2,764 | 2,210 |
| | Massachusetts | 639 | 30,349 | 332 | 19,619 | 26,425 | 19,542 |
| | Rhode Island | 111 | 3,419 | 66 | 3,048 | 3,142 | 2,445 |
| | Connecticut | 18 | 580 | 10 | 447 | 457 | 347 |
| | New York | 114 | 2,235 | 47 | 1,702 | 1,685 | 948 |
| | New Jersey | 81 | 1,272 | 36 | 1,174 | 998 | 535 |
| | Other | 46 | 861 | 12 | 610 | 724 | 595 |
| | **Total** | **1,284** | **50,820** | **625** | **34,106** | **43,416** | **31,794** |
| **2007** | Maine | 191 | 7,708 | 71 | 4,456 | 6,692 | 5,377 |
| | New Hampshire | 70 | 3,464 | 36 | 2,078 | 2,997 | 2,398 |
| | Massachusetts | 646 | 30,529 | 300 | 18,130 | 26,546 | 19,714 |
| | Rhode Island | 113 | 3,645 | 67 | 2,982 | 3,447 | 3,110 |
| | Connecticut | 16 | 482 | 8 | 382 | 426 | 279 |
| | New York | 107 | 1,934 | 40 | 1,459 | 1,418 | 858 |
| | New Jersey | 82 | 1,271 | 39 | 1,182 | 1,053 | 620 |
| | Other | 46 | 676 | 13 | 501 | 621 | 448 |
| | **Total** | **1,271** | **49,710** | **574** | **31,170** | **43,200** | **32,804** |
| **2008** | Maine | 168 | 6,013 | 55 | 3,176 | 4,916 | 4,291 |
| | New Hampshire | 70 | 3,406 | 36 | 1,951 | 3,123 | 2,672 |
| | Massachusetts | 624 | 28,105 | 281 | 15,598 | 24,364 | 19,732 |
| | Rhode Island | 103 | 2,801 | 58 | 2,390 | 2,660 | 2,262 |
| | Connecticut | 15 | 410 | 7 | 309 | 344 | 301 |
| | New York | 102 | 1,614 | 36 | 1,085 | 1,186 | 689 |
| | New Jersey | 77 | 1,079 | 29 | 904 | 776 | 584 |
| | Other | 41 | 543 | 10 | 392 | 374 | 317 |
| | **Total** | **1,200** | **43,971** | **512** | **25,805** | **37,743** | **30,847** |
| **2009** | Maine | 166 | 5,042 | 50 | 2,505 | 4,474 | 3,919 |
| | New Hampshire | 72 | 3,171 | 35 | 1,605 | 2,561 | 2,851 |
| | Massachusetts | 623 | 25,368 | 266 | 12,521 | 23,634 | 20,671 |
| | Rhode Island | 90 | 1,865 | 49 | 1,850 | 1,773 | 1,860 |
| | Connecticut | 16 | 257 | 8 | 261 | 214 | 249 |
| | New York | 101 | 846 | 31 | 797 | 650 | 551 |
| | New Jersey | 73 | 650 | 20 | 574 | 496 | 435 |
| | Other | 38 | 456 | 10 | 357 | 379 | 331 |
| | **Total** | **1,179** | **37,656** | **469** | **20,472** | **34,181** | **30,867** |

*These data include multispecies/monkfish DAS trips (in which the multispecies and monkfish clocks run concurrently).
Permits are limited access multispecies permits that were active on the last day of the fishing year.
DAS Allocated is multispecies A DAS net allocation after including base and carry over, NOT leased.
Source: Permits Database and AMS Database

**Table 47 – Multispecies Limited Access A Days-at-Sea Used by Primary Gear Type, FY 2005 - 2009**

| Categories | | Total Number of Permitted Vessels | Total Days-at-Sea Allocated | Number of Permitted Vessels that Called In | DAS Allocated to Vessels that Called In | DAS Allocated and Net Leased to Vessels that Called In | Total DAS Used |
|---|---|---|---|---|---|---|---|
| **2005** | Bottom Trawl | 765 | 34,982 | 456 | 26,305 | 31,634 | 23,595 |
| | Midwater Trawl | 5 | 223 | 3 | 175 | 191 | 55 |
| | Other Trawl | 9 | 382 | 5 | 278 | 370 | 297 |
| | Longline | 135 | 2,916 | 42 | 1,970 | 2,050 | 918 |
| | Hand Line | 60 | 952 | 18 | 595 | 634 | 302 |
| | Rod and Reel | 64 | 615 | 12 | 400 | 400 | 174 |
| | Gillnet | 259 | 9,420 | 139 | 7,102 | 8,449 | 6,199 |
| | Pots and Traps | 10 | 49 | 2 | 49 | 49 | 5 |
| | Other | 13 | 479 | 8 | 373 | 375 | 229 |
| | **Total** | **1,320** | **50,018** | **685** | **37,247** | **44,152** | **31,773** |
| **2006** | Bottom Trawl | 764 | 34,077 | 410 | 23,117 | 29,741 | 23,017 |
| | Midwater Trawl | 4 | 167 | 2 | 122 | 137 | 93 |
| | Other Trawl | 11 | 560 | 6 | 315 | 472 | 415 |
| | Longline | 118 | 3,043 | 33 | 1,996 | 2,107 | 865 |
| | Hand Line | 56 | 1,004 | 9 | 401 | 457 | 197 |
| | Rod and Reel | 62 | 797 | 8 | 496 | 511 | 162 |
| | Gillnet | 240 | 10,503 | 148 | 7,163 | 9,494 | 6,765 |
| | Pots and Traps | 10 | 46 | 1 | 46 | 46 | 14 |
| | Other | 19 | 623 | 8 | 451 | 451 | 265 |
| | **Total** | **1,284** | **50,820** | **625** | **34,106** | **43,416** | **31,794** |
| **2007** | Bottom Trawl | 767 | 33,642 | 376 | 21,163 | 30,108 | 23,986 |
| | Midwater Trawl | 4 | 133 | 2 | 122 | 122 | 81 |
| | Other Trawl | 14 | 648 | 6 | 302 | 522 | 504 |
| | Longline | 110 | 2,668 | 30 | 1,833 | 1,922 | 717 |
| | Hand Line | 57 | 1,075 | 8 | 374 | 407 | 207 |
| | Rod and Reel | 58 | 754 | 8 | 431 | 431 | 160 |
| | Gillnet | 233 | 10,212 | 138 | 6,700 | 9,415 | 6,993 |
| | Pots and Traps | 8 | 46 | 1 | 46 | 46 | 11 |
| | Other | 20 | 531 | 5 | 198 | 227 | 146 |
| | **Total** | **1,271** | **49,710** | **574** | **31,170** | **43,200** | **32,804** |
| **2008** | Bottom Trawl | 731 | 30,025 | 335 | 17,622 | 25,924 | 21,249 |
| | Midwater Trawl | 4 | 152 | 2 | 122 | 122 | 59 |
| | Other Trawl | 13 | 541 | 6 | 314 | 485 | 380 |
| | Longline | 100 | 1,795 | 25 | 1,192 | 1,257 | 544 |
| | Hand Line | 60 | 846 | 6 | 266 | 276 | 121 |
| | Rod and Reel | 52 | 503 | 6 | 281 | 281 | 128 |
| | Gillnet | 219 | 9,893 | 129 | 5,880 | 9,252 | 8,267 |
| | Pots and Traps | 7 | 0 | | 0 | 0 | |
| | Other | 14 | 216 | 3 | 126 | 144 | 100 |
| | **Total** | **1,200** | **43,971** | **512** | **25,805** | **37,743** | **30,847** |
| **2009** | Bottom Trawl | 723 | 25,192 | 298 | 13,615 | 23,111 | 20,475 |
| | Midwater Trawl | 3 | 94 | 2 | 104 | 94 | 41 |
| | Other Trawl | 13 | 375 | 6 | 267 | 373 | 459 |
| | Longline | 91 | 1,355 | 22 | 851 | 1,033 | 641 |
| | Hand Line | 62 | 909 | 7 | 263 | 321 | 190 |
| | Rod and Reel | 52 | 328 | 6 | 239 | 231 | 123 |
| | Gillnet | 214 | 9,235 | 125 | 5,027 | 8,881 | 8,773 |
| | Pots and Traps | 6 | 0 | | 0 | 0 | |
| | Other | 15 | 168 | 3 | 106 | 137 | 165 |
| | **Total** | **1,179** | **37,656** | **469** | **20,472** | **34,181** | **30,867** |

*These data include multispecies/monkfish DAS trips (in which the multispecies and monkfish clocks run concurrently).
Permits are limited access multispecies permits that were active on the last day of the fishing year.
DAS Allocated is multispecies A DAS net allocation after including base and carry over, NOT leased.
Source: Permits Database and AMS Database

### 6.5.3.3 Landings and Revenues

The commercial harvesting sector may be described as a function of its multiple components, including gear types, vessels, and communities. In this section, activity in the commercial sector is characterized in terms of **permit category**, **vessel length class**, **homeport state, and port group**. Because of the way in which the data is queried for each of these descriptive approaches, total numbers of vessels, landings and revenues may differ slightly among the four sections. In some cases information cannot be reported due to data confidentiality provisions. Where such anomalies occur, we have attempted to provide a clear explanation. Revenue is reported as gross revenue and does not take into account the changes in fixed and operating costs over time (net revenue).

Landings and revenues by fishing year were summarized in Amendment 13, FW 40A, FW 40B, FW 41, FW 42, Amendment 16, and FW 44. This section updates this information for FY 2004 through 2009. Minor differences exist between the information previously reported and this section due to updates to the databases and revisions to data queries (including the addition of Atlantic wolffish to the management unit). Most notably, nominal and constant groundfish revenues were incorrectly reported in Amendment 16 in Table 57 (NEFMC 2009a) due to a data error; other tables were correct. The data are also reported in different categories than in previous reports in order to capture changes in permit categories and changes in landings and revenues in communities.

Regulated groundfish (cod, haddock, yellowtail flounder, winter flounder, witch flounder, windowpane flounder, plaice (dabs), pollock, redfish, Atlantic halibut, white hake, red/white hake mixed, and Atlantic wolffish) and ocean pout landings and revenues are summarized in Table 48. This table includes all landings reported to the NMFS dealer database system, regardless of whether the landings can be attributed to a multispecies permit. It includes aggregate landings reported by states and landings that cannot be attributed to a permit as well as landings by vessels that did not possess a federal multispecies permit (i.e. landings from state registered vessels fishing in state waters). Regulated groundfish landings declined from 80 million pounds in FY 2004 to 50 million pounds (landed weight) in FY 2006, or 37 percent, before increasing to 68 million pounds in FY 2008 and decreasing again to 66 million pounds in FY 2009. Nominal revenues decreased 9 percent from FY 2004 ($84.6 million) to FY 2006 ($76.9 million) and then rebounded to $85 million in FY 2008 before decreasing again to $79.7 million in FY 2009. Revenues in constant 1999 dollars declined 13 percent, from $74.0 million in FY 2004 to $60.4 million in FY 2009. The average price, in both nominal and constant dollar terms, peaked in FY 2006, the year with the lowest landed weight. By FY 2008, in terms of constant dollars the price declined to less than a dollar per pound. The sections following this table summarize landings and revenues for groundfish permit holders only.

**Table 48 – Total groundfish landings and revenues, FY 2004-2009**

| | FY | | | | | |
|---|---|---|---|---|---|---|
| **Data** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** |
| Groundfish, landed weight | 79,833,841 | 65,707,988 | 50,095,191 | 60,781,989 | 68,161,349 | 66,159,986 |
| Groundfish, live weight | 87,280,257 | 72,063,086 | 54,979,680 | 67,437,099 | 75,843,340 | 73,999,137 |
| Nominal Dollars | $84,633,488 | $85,210,805 | $76,893,026 | $84,596,827 | $85,061,015 | $79,744,807 |
| 1999 Dollars | $73,980,543 | $74,026,292 | $64,951,294 | $67,027,790 | $64,358,387 | $60,423,467 |
| Average Price (nominal) | $1.06 | $1.30 | $1.53 | $1.39 | $1.25 | $1.21 |
| Average Price (constant) | $0.93 | $1.13 | $1.30 | $1.10 | $0.94 | $0.91 |

#### 6.5.3.3.1 Landings and Revenues by Groundfish Permit Category

As mentioned earlier, the information in the following sections is reported for vessels with groundfish permits only. Total landings by groundfish permits declined from 606.3 million pounds in FY 2001 to 436.4 million pounds in FY 2006 before rebounding to 467.9 million pounds in FY 2009, a decline of 22.8 percent from FY 2001. For individual DAS permits, total landings declined from 244.9 million pounds in FY 2004 to 194.6 million pounds in FY 2007 before increasing to 208.9 million pounds in FY 2009, a decline of 14.7 percent from FY 2004. Before FY 2004, total landings from individual DAS permits were significantly lower, due to a large number of vessels fishing under fleet DAS permits. Revenue changes were similar; from FY 2004 to FY 2009 revenues (constant 1999 dollars) declined 7.3 percent for all permits and 18.0 percent for individual DAS permits (Table 49 and Table 50).

Groundfish landings by permitted vessels declined from 103.4 million pounds in FY 2001 to 48.4 million pounds in FY 2006 (-53.2%), then increased to 63.5 million pounds in FY 2009 (-38.6% from FY 2001). Groundfish revenues showed a similarly large initial reduction, declining from $98.6 million in FY 2001 to $62.5 million in FY 2006, a decline of 63.4 percent. In spite of the increase in landed weight from FY 2006 to FY 2009, revenues actually continued to decline slightly to $57.7 million, or 7.7 percent less than FY 2006. Individual DAS permits did slightly better, with FY 2004 revenues of $66.9 million declining 9 percent to $60.5 million in FY 2006, and declining again to $56.1 million in FY 2009, 16.1 percent less than in FY 2004 (Table 51 and Table 52).

The percentage of revenues generated by groundfish permits that came from groundfish tended to decline from FY 2001 to FY 2009, from 75% to just over 12%. These revenues can be earned on groundfish trips or on trips in other fisheries. When comparing total revenues and groundfish revenues for individual DAS permit holders it is clear that groundfish is only a portion of the revenue generated by these fishing businesses. For individual DAS permits, groundfish revenues were 49 percent of total revenues in FY 2001 and declined to 42 percent in FY 2009.

During this period, the number of active groundfish permits with a landings record of any species in the dealer database also declined, from 1,314 in FY 2001 to 633 in FY 2009 (a change of 52 percent) (Table 53). The number of Individual DAS permits declined from 691 in 2004 to 450 in 2009. Active Small Vessel Exemption category permits remained fairly constant in numbers, while Combination and Handgear permits declined through about 2004 and remained steady thereafter. Vessels using active Hook Gear permits declined greatly, from 81 in FY 2001 to 9 in FY 2009 (88.9 percent).

Average revenues for active groundfish permits varied widely across the time series (Table 54). Individual DAS category permits increased from an average of $96,771 in FY 2004 to $124,811 in FY 2009 (22.5 percent). Hook Gear permits fluctuated from a high of $26,535 in FY 2005 to a low of $7,149 in 2009. Handgear A permits had generally increasing average revenues, from a low of $1,392 in FY 2005 to a high of $5,093 in FY 2009. Average revenue from Combination vessel permits declined from FY 2004 until FY 2007, before rebounding in FY 2008 and 2009 (51.3 percent total decline from 2003 to 2009).

**Table 49 – Total landings by groundfish permit category, FY 2001 - 2009**

| Category | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| Individual DAS | 67,082,886 | 60,555,258 | 55,545,268 | 244,869,377 | 203,659,914 | 195,144,787 | 194,633,706 | 212,790,439 | 208,885,463 |
| Fleet DAS | 231,268,872 | 188,132,355 | 186,143,621 | 605,481 | | | | | |
| Small Vessel Exemption | 6,588 | Conf. | Conf. | 10,159 | 31,635 | 20,551 | 119,178 | 157,423 | 118,134 |
| Hook Gear | 2,770,964 | 1,675,134 | 1,818,524 | 2,134,466 | 1,694,986 | 1,218,495 | 1,009,899 | 1,108,746 | 939,276 |
| Combination Vessel | 12,926,924 | 13,218,161 | 17,743,414 | 14,452,283 | 10,888,403 | 10,970,697 | 9,360,710 | 11,375,497 | 9,578,028 |
| Large Mesh DAS | 8,311,976 | 7,415,139 | 7,791,124 | 7,255,971 | 4,910,866 | 4,338,460 | 4,307,712 | 4,359,829 | 3,894,537 |
| Handgear | 126,761,476 | 72,361,485 | 143,865,251 | | | | | | |
| Handgear A | | | | 1,637,728 | 30,178,130 | 18,763,373 | 7,554,424 | 6,418,633 | 5,461,766 |
| Handgear B | | | | 129,282,110 | 153,016,712 | 113,799,842 | 126,772,588 | 130,474,054 | 133,638,177 |
| Other Open Access | 157,128,632 | 96,729,305 | 100,873,093 | 109,709,282 | 98,185,684 | 92,146,876 | 97,217,711 | 104,828,248 | 105,424,529 |
| Total | 606,258,318 | 440,086,837 | 513,780,295 | 509,956,857 | 502,566,330 | 436,403,081 | 440,975,928 | 471,512,869 | 467,939,910 |

**Table 50 – Total revenues (1999 dollars) by groundfish permit category, FY 2001 - 2009**

| Category | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| Individual DAS | $63,005,926 | $61,734,890 | $52,738,496 | $161,467,018 | $180,707,691 | $161,258,141 | $147,249,497 | $142,749,706 | $132,375,083 |
| Fleet DAS | $120,721,087 | $117,177,937 | $112,644,270 | $598,602 | | | | | |
| Small Vessel Exemption | $7,290 | Conf. | Conf. | $11,443 | $100,195 | $39,263 | $146,880 | $261,457 | $208,113 |
| Hook Gear | $2,854,182 | $2,676,627 | $2,445,595 | $3,335,824 | $3,743,698 | $3,648,543 | $2,835,928 | $2,398,836 | $2,189,518 |
| Combination Vessel | $27,857,876 | $31,513,079 | $33,708,899 | $40,517,445 | $48,260,800 | $44,677,387 | $38,921,702 | $35,848,712 | $37,344,169 |
| Large Mesh DAS | $9,352,720 | $8,212,359 | $6,963,302 | $6,567,583 | $6,710,455 | $4,860,237 | $3,789,944 | $4,389,421 | $2,883,164 |
| Handgear | $28,884,772 | $24,452,876 | $28,581,585 | | | | | | |
| Handgear A | | | | $1,401,010 | $5,078,144 | $4,069,096 | $3,008,347 | $2,583,039 | $2,830,077 |
| Handgear B | | | | $38,259,487 | $57,326,175 | $55,521,251 | $55,642,744 | $53,286,823 | $49,116,934 |
| Other Open Access | $140,342,092 | $158,078,405 | $185,176,530 | $241,955,823 | $281,705,097 | $254,821,291 | $255,819,899 | $221,923,988 | $230,847,061 |
| Total | 393,025,947 | 403,846,172 | 422,258,677 | 494,114,235 | 583,632,255 | 528,895,209 | 507,414,941 | 463,441,982 | 457,794,119 |

**Table 51 – Groundfish landings by groundfish permit category, FY 2001 – FY 2009**

| Category | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| Individual DAS | 50,301,967 | 40,864,820 | 38,216,342 | 72,715,253 | 62,067,822 | 46,802,829 | 57,662,703 | 64,671,329 | 61,835,378 |
| Fleet DAS | 45,007,575 | 38,017,046 | 37,911,377 | 95,484 | | | | | |
| Small Vessel Exemption | 5,496 | Conf. | Conf. | Conf. | Conf. | Conf. | 1,848 | 2,592 | 3,579 |
| Hook Gear | 1,098,050 | 528,342 | 478,978 | 631,805 | 544,607 | 205,806 | 192,718 | 209,022 | 51,216 |
| Combination Vessel | 3,820,879 | 2,465,981 | 2,839,056 | 1,894,704 | 846,338 | 397,448 | 558,376 | 1,180,765 | 1,003,665 |
| Large Mesh DAS | 2,679,578 | 1,352,573 | 1,303,702 | 1,524,913 | 671,286 | 590,093 | 163,378 | 317,851 | 342,503 |
| Handgear | 454,907 | 178,787 | 136,244 | | | | | | |
| Handgear A | | | | 248,024 | 30,955 | 122,378 | 79,083 | 100,167 | 152,261 |
| Handgear B | | | | 68,475 | 47,647 | 54,995 | 150,517 | 84,528 | 44,852 |
| Other Open Access | 49,841 | 69,615 | 137,776 | 101,875 | 58,480 | 212,711 | 115,814 | 78,370 | 43,547 |
| Total | 103,418,293 | 83,477,164 | 81,023,475 | 77,280,533 | 64,267,135 | 48,386,260 | 58,924,437 | 66,644,624 | 63,477,001 |

**Table 52 – Groundfish revenues (1999 dollars) by groundfish permits category, FY 2001 - 2009**

| Category | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| Individual DAS | $47,329,837 | $45,305,967 | $36,299,927 | $66,868,777 | $69,188,498 | $60,526,167 | $62,728,288 | $59,656,481 | $56,164,817 |
| Fleet DAS | $43,106,389 | $44,351,025 | $39,424,405 | $61,184 | | | | | |
| Small Vessel Exemption | $5,630 | Conf. | Conf. | Conf. | Conf. | Conf. | $2,976 | $3,389 | $4,059 |
| Hook Gear | $1,258,845 | $762,310 | $645,903 | $828,724 | $875,657 | $383,944 | $336,908 | $271,353 | $64,345 |
| Combination Vessel | $3,802,377 | $2,903,858 | $2,958,558 | $1,763,554 | $1,195,786 | $535,598 | $727,519 | $1,075,572 | $880,322 |
| Large Mesh DAS | $2,626,588 | $1,612,110 | $1,187,912 | $1,393,033 | $759,700 | $554,015 | $202,134 | $1,145,087 | $281,632 |
| Handgear | $463,326 | $243,824 | $170,583 | | | | | | |
| Handgear A | | | | $183,214 | $47,329 | $117,613 | $108,815 | $124,544 | $173,161 |
| Handgear B | | | | $90,048 | $75,338 | $78,602 | $207,849 | $124,239 | $61,963 |
| Other Open Access | $44,302 | $82,275 | $127,506 | $111,505 | $83,056 | $321,082 | $169,123 | $88,292 | $45,923 |
| Total | $98,637,293 | $95,261,368 | $80,814,794 | $71,300,039 | $72,225,364 | $62,517,020 | $64,483,613 | $62,488,957 | $57,676,221 |

**Table 53 – Active groundfish permits, FY 2001 - 2009**

| Category | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| Individual DAS | 132 | 131 | 131 | 691 | 634 | 593 | 531 | 507 | 450 |
| Fleet DAS | 734 | 676 | 649 | | | | | | |
| Small Vessel Exemption | 4 | 1 | 1 | 2 | 1 | 2 | 4 | 4 | 5 |
| Hook Gear | 81 | 53 | 48 | 35 | 33 | 22 | 18 | 15 | 9 |
| Combination Vessel | 32 | 22 | 18 | 16 | 15 | 10 | 16 | 11 | 11 |
| Large Mesh DAS | 43 | 28 | 4 | 27 | 22 | 17 | 11 | 7 | 7 |
| Handgear | 226 | 179 | 156 | | | | | | |
| Handgear A | | | | 46 | 34 | 26 | 23 | 32 | 34 |
| Handgear B | | | | 72 | 58 | 52 | 62 | 61 | 73 |
| Other Open Access | 62 | 47 | 63 | 65 | 53 | 63 | 62 | 49 | 44 |
| Total | 1,314 | 1,137 | 1,070 | 954 | 850 | 785 | 727 | 686 | 633 |

**Table 54 – Average groundfish revenues (1999 dollars) per active groundfish permit, FY 2001 - 2009**

| Category | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| Individual DAS | $358,559 | $345,847 | $277,099 | $96,771 | $109,130 | $102,068 | $118,132 | $117,666 | $124,811 |
| Fleet DAS | $58,728 | $65,608 | $60,746 | | | | | | |
| Individual + Fleet Combined | $104,430 | $111,099 | $97,082 | | | | | | |
| Small Vessel Exemption | $1,407 | Conf. | Conf. | Conf. | Conf. | Conf. | $744 | $847 | $812 |
| Hook Gear | $15,541 | $14,383 | $13,456 | $23,678 | $26,535 | $17,452 | $18,717 | $18,090 | $7,149 |
| Combination Vessel | $118,824 | $131,994 | $164,364 | $110,222 | $79,719 | $53,560 | $45,470 | $97,779 | $80,029 |
| Large Mesh DAS | $61,083 | $57,575 | $296,978 | $51,594 | $34,532 | $32,589 | $18,376 | $163,584 | $40,233 |
| Handgear | $2,050 | $1,362 | $1,093 | | | | | | |
| Handgear A | | | | $3,983 | $1,392 | $4,524 | $4,731 | $3,892 | $5,093 |
| Handgear B | | | | $1,251 | $1,299 | $1,512 | $3,352 | $2,037 | $849 |
| Other Open Access | $715 | $1,751 | $2,024 | $1,715 | $1,567 | $5,097 | $2,728 | $1,802 | $1,044 |

#### 6.5.3.3.2 Landings and Revenues by Vessel Length Group

When total landings and revenues (constant 1999 dollars) of groundfish permits are examined by vessel length, it is clear that vessels less than 30 feet in length have become an inconsequential component of the fishery since FY 2004, accounting for less than 0.13 percent of landings in FY 2009. The revenues from these few landings decreased by 53.6 percent from FY 2004 through FY 2009. Vessels between 30 and 50 feet in length actually increased groundfish landings (+38 percent) and revenues (+23 percent) from FY 2004 to FY 2009 after a decrease from FY 2001 to FY 2004, the only vessel size class to do so. In FY 2009, Vessels between 50 and 75 feet saw landings decline by 13.7 percent since FY 2004 and by 24.6 percent since FY 2001, and saw revenues decline by 14.5 percent from FY 2004 to FY 2009 after a 10.0% increase from FY 2001 to FY 2004. Vessels 75 feet and over fluctuated in landings but increased in revenue (30.7 percent) from FY 2001 through FY 2004. However, these largest vessels then saw landings decline by 14.2 percent from FY 2004 to FY 2009, and revenues decline by 9.9 percent in the same period (Table 55).

Groundfish landings and revenues (constant 1999 dollars), as examined by vessel length, mirror those of the total landings by vessel length. Vessels less than 30 feet in length accounted for 0.16 percent of landings in FY 2009. The revenues from these few landings decreased by 79.0 percent from FY 2004 through FY 2009. Vessels between 30 and 50 feet in length actually increased groundfish landings (+21 percent) and revenues (+8.9 percent) from FY 2004 to FY 2009 after a decrease from FY 2001 to FY 2004, the only vessel size class to do so. In FY 2009, Vessels between 50 and 75 feet saw landings decline by 38.1 percent since FY 2004 and by 69.4 percent since FY 2001, and saw revenues decline by 31.9 percent from FY 2004 to FY 2009 after a 33.9% decrease from FY 2001 to FY 2004. Vessels 75 feet and over decreased in both groundfish landings (15.7 percent) and revenue (20.9 percent) from FY 2001 through FY 2004. However, these largest vessels then saw landings fluctuate from FY 2004 to FY 2009, ending at 19.3 percent lower than FY 2004, and saw revenues decline by 24.4 percent in the same period. These changes are somewhat surprising, as many believed that the smaller vessels size class (30-50 feet) would suffer the most from the differential DAS counting measures adopted in FW 42 (Table 56).

**Table 55 – Total landed weight (lbs.) and revenues (1999 dollars) by length group, FY 2001 – FY 2009**

| Length Group | Data | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| Less than 30 | Weight | 1,495,389 | 1,014,569 | 803,224 | 1,807,914 | 1,651,703 | 1,211,166 | 818,954 | 706,801 | 624,400 |
| | Dollars | $1,426,091 | $1,120,241 | $1,173,094 | $2,047,056 | $1,620,449 | $1,672,873 | $1,546,528 | $1,350,337 | $949,556 |
| 30 to less than 50 | Weight | 52,543,920 | 45,049,181 | 48,202,346 | 41,176,348 | 46,103,586 | 47,588,975 | 51,369,775 | 56,808,183 | 66,066,544 |
| | Dollars | $57,010,963 | $52,429,810 | $50,153,461 | $49,919,445 | $76,975,863 | $70,891,944 | $70,136,102 | $69,147,699 | $64,560,213 |
| 50 to less than 75 | Weight | 151,531,804 | 136,713,383 | 129,204,193 | 132,542,972 | 114,714,912 | 103,909,761 | 108,288,944 | 109,601,020 | 114,317,182 |
| | Dollars | $122,110,693 | $126,424,416 | $127,033,443 | $135,594,052 | $156,721,390 | $142,378,995 | $129,174,633 | $120,273,972 | $115,940,249 |
| 75 and over | Weight | 400,687,205 | 257,309,891 | 335,571,309 | 334,429,623 | 340,096,129 | 283,693,179 | 280,498,255 | 304,396,865 | 286,931,784 |
| | Dollars | $212,478,201 | $223,871,947 | $243,899,903 | $306,553,683 | $348,314,553 | $313,951,398 | $306,557,678 | $272,669,974 | $276,344,101 |
| Total Weight | | 606,258,318 | 440,087,024 | 513,781,072 | 509,956,857 | 502,566,330 | 436,403,081 | 440,975,928 | 471,512,869 | 467,939,910 |
| Total Dollars | | $393,025,947 | $403,846,414 | $422,259,902 | $494,114,235 | $583,632,255 | $528,895,209 | $507,414,941 | $463,441,982 | $457,794,119 |

**Table 56 – Groundfish landed weight (lbs.) and revenues (1999 dollars) by length group, F 2001 – FY 2009**

| Length Group | Data | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| Less than 30 | Weight | 839,251 | 396,167 | 354,991 | 480,973 | 146,590 | 111,993 | 70,667 | 57,272 | 101,519 |
| | Dollars | $942,778 | $570,899 | $461,981 | $518,424 | $201,463 | $134,229 | $105,350 | $65,151 | $108,764 |
| 30 to less than 50 | Weight | 23,905,156 | 17,927,058 | 18,436,523 | 15,975,112 | 15,514,340 | 13,767,506 | 17,269,922 | 20,520,014 | 20,184,371 |
| | Dollars | $23,409,792 | $21,922,821 | $19,423,441 | $17,325,040 | $18,620,985 | $16,776,424 | $18,529,843 | $19,800,753 | $19,044,650 |
| 50 to less than 75 | Weight | 43,518,214 | 34,342,719 | 32,791,598 | 31,223,980 | 24,542,026 | 18,365,249 | 19,791,111 | 21,868,584 | 19,322,235 |
| | Dollars | $40,340,343 | $37,897,022 | $32,001,358 | $26,661,714 | $26,827,521 | $23,738,294 | $22,144,339 | $21,040,897 | $18,250,097 |
| 75 and over | Weight | 35,155,672 | 30,811,275 | 29,440,367 | 29,601,487 | 24,066,362 | 16,142,254 | 21,792,737 | 24,198,754 | 23,868,876 |
| | Dollars | $33,944,381 | $34,870,693 | $28,928,019 | $26,796,080 | $26,577,010 | $21,868,655 | $23,704,081 | $21,582,156 | $20,272,711 |
| Total Groundfish Weight | | 103,418,293 | 83,477,219 | 81,023,479 | 77,281,552 | 64,269,318 | 48,387,002 | 58,924,437 | 66,644,624 | 63,477,001 |
| Total Groundfish Dollars | | $98,637,293 | $95,261,434 | $80,814,800 | $71,301,257 | $72,226,979 | $62,517,603 | $64,483,613 | $62,488,957 | $57,676,221 |

#### 6.5.3.3.3 Landings and Revenue by Homeport State

Each permit holder declares a homeport state on all permit applications. When evaluating impacts of regulations on individual states, summarizing landings and revenues by these homeport states may indicate differential impacts under the assumption that the economic benefits of fishing activity return primarily to these homeport states. Total landings and revenues by homeport state are shown in Table 57 and Table 58. Groundfish landings by homeport state are shown in Table 59 and Table 60.

Vessels claiming Maine, New Hampshire, Massachusetts, or Rhode Island as homeport state landed 97.4 percent of the groundfish in FY 2009, an increase from the 93 percent landed in FY 2004. Of these four states, only New Hampshire vessels increased groundfish landings from FY 2004 to FY 2009 by 1.6 million pounds, or 68 percent. New Hampshire also increased 4 percent from FY 2001 to FY 2009. In FY 2009 Maine vessels landed 94 percent of the groundfish they landed in FY 2004 and 76 of what they landed in FY 2001, while Massachusetts vessels landed 85 percent of what was landed in FY 2004 and 64 percent of what was landed in FY 2001. Groundfish landings by Rhode Island in FY 2009 vessels declined to 34 percent of the FY 2004 value and 28 percent of the FY 2001 value. Again, these changes are somewhat surprising in that the inshore differential DAS area in the GOM was expected to reduce groundfish landings for New Hampshire vessels. Revenue changes differed only slightly from the changes in groundfish landed weight with the exception of Rhode Island, where the 66 percent decline in landings led to only a 42 percent decline in groundfish revenues between FY 2004 and FY 2009.

But as previously noted revenues (constant 1999 dollars) from other fisheries are key components of the income for permit holders. When total revenues by homeport state are examined for the permitted groundfish vessels, a different picture emerges. From FY 2004 to FY 2009, total revenue declines were seen for permits claiming homeport states of Massachusetts (-6 percent), Rhode Island (-13 percent), and New Hampshire (-17 percent). Total revenues for Maine increased by 24 percent.

**Table 57 – Total landings by homeport state, FY 2001 – FY 2009**

| HPST | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| CT | 363,090 | 439,728 | 1,436,588 | 448,781 | 484,347 | 676,813 | 2,492,876 | 4,499,534 | 5,057,629 |
| ME | 78,724,996 | 59,323,936 | 57,293,476 | 54,890,246 | 56,618,663 | 50,232,331 | 55,559,478 | 61,229,147 | 66,214,886 |
| MA | 283,227,205 | 198,514,601 | 255,231,528 | 231,381,193 | 245,837,887 | 209,348,873 | 210,919,028 | 203,706,598 | 199,354,075 |
| NH | 13,367,647 | 5,642,063 | 12,581,323 | 35,369,073 | 26,996,393 | 14,342,036 | 21,918,173 | 22,039,395 | 27,138,010 |
| RI | 75,348,434 | 38,070,333 | 43,504,270 | 47,543,755 | 45,940,811 | 47,476,698 | 43,997,569 | 44,954,778 | 44,130,965 |
| NJ | 88,004,781 | 70,218,101 | 77,464,613 | 75,001,365 | 73,611,052 | 68,001,667 | 69,641,289 | 87,529,876 | 80,130,006 |
| NY | 30,724,670 | 27,716,785 | 26,217,127 | 22,654,206 | 17,984,632 | 18,026,110 | 16,984,292 | 22,646,698 | 24,770,025 |
| NC | 19,079,500 | 23,031,633 | 22,944,851 | 24,678,303 | 21,339,788 | 15,127,768 | 8,660,404 | 14,729,383 | 11,888,749 |
| Other | 17,417,995 | 17,129,844 | 17,107,296 | 17,989,935 | 13,752,757 | 13,170,785 | 10,802,819 | 10,177,460 | 9,255,565 |
| Total | 606,258,318 | 440,087,024 | 513,781,072 | 509,956,857 | 502,566,330 | 436,403,081 | 440,975,928 | 471,512,869 | 467,939,910 |

**Table 58 – Total revenues (1999 dollars) by homeport state, FY 2001 – FY 2009**

| HPST | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| CT | $611,048 | $730,789 | $2,994,566 | $1,087,123 | $1,840,043 | $2,207,758 | $5,849,372 | $10,526,580 | $10,217,904 |
| ME | $26,626,551 | $24,710,117 | $23,252,319 | $23,848,402 | $29,474,842 | $26,762,024 | $29,606,405 | $29,528,857 | $31,259,947 |
| MA | $195,349,374 | $204,157,832 | $203,395,819 | $230,557,035 | $278,960,149 | $254,783,145 | $242,587,222 | $214,714,594 | $215,665,776 |
| NH | $8,428,811 | $7,087,426 | $6,097,642 | $16,263,303 | $18,411,066 | $13,491,492 | $14,937,574 | $14,461,475 | $13,464,488 |
| RI | $30,777,543 | $28,525,346 | $31,448,563 | $30,233,620 | $33,951,187 | $35,071,866 | $29,551,818 | $28,163,240 | $23,023,845 |
| NJ | $44,292,729 | $47,745,282 | $57,987,717 | $76,836,382 | $98,227,659 | $93,073,649 | $97,696,476 | $86,744,930 | $83,520,120 |
| NY | $26,398,229 | $25,128,722 | $23,437,366 | $21,108,304 | $22,880,870 | $21,281,065 | $17,807,011 | $19,184,325 | $20,056,525 |
| NC | $20,069,579 | $24,660,941 | $28,587,578 | $36,166,710 | $43,398,662 | $33,992,317 | $30,152,327 | $26,308,882 | $26,778,922 |
| Other | $40,472,082 | $41,099,959 | $45,058,332 | $58,013,357 | $56,487,775 | $48,231,892 | $39,226,736 | $33,809,098 | $33,806,591 |
| Total | $393,025,947 | $403,846,414 | $422,259,902 | $494,114,235 | $583,632,255 | $528,895,209 | $507,414,941 | $463,441,982 | $457,794,119 |

**Table 59 – Groundfish landings by homeport state, FY 2001 – FY 2009**

| HPST | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| CT | 115,152 | 206,295 | 205,084 | 44,916 | 20,744 | 91,739 | 189,999 | 218,419 | 101,390 |
| ME | 15,319,317 | 11,649,857 | 12,854,761 | 12,348,854 | 11,565,820 | 8,611,001 | 11,240,196 | 12,075,418 | 11,641,998 |
| MA | 67,392,307 | 54,942,388 | 50,527,509 | 50,702,142 | 40,489,242 | 30,784,454 | 37,684,924 | 44,257,818 | 43,238,152 |
| NH | 4,712,053 | 3,313,107 | 3,445,717 | 3,346,377 | 3,170,158 | 2,795,023 | 3,944,409 | 5,245,665 | 4,899,354 |
| RI | 7,239,855 | 7,225,382 | 7,596,776 | 6,114,406 | 5,319,875 | 3,661,606 | 3,611,712 | 2,616,902 | 2,048,790 |
| NJ | 854,198 | 502,831 | 658,452 | 657,135 | 599,466 | 557,385 | 517,943 | 386,225 | 414,864 |
| NY | 4,199,723 | 3,589,125 | 3,373,185 | 1,722,950 | 1,315,094 | 1,016,606 | 961,635 | 854,845 | 481,209 |
| NC | 1,254,276 | 866,766 | 1,010,968 | 1,356,537 | 1,113,425 | 410,869 | 359,894 | 492,204 | 621,199 |
| Other | 2,331,412 | 1,181,468 | 1,351,027 | 988,235 | 675,494 | 458,319 | 413,725 | 497,128 | 30,045 |
| Total | 103,418,293 | 83,477,219 | 81,023,479 | 77,281,552 | 64,269,318 | 48,387,002 | 58,924,437 | 66,644,624 | 63,477,001 |

**Table 60 – Groundfish revenues (1999 dollars) by homeport state, FY 2001 – FY 2009**

| HPST | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| CT | $99,883 | $214,561 | $229,002 | $54,177 | $12,362 | $155,887 | $280,790 | $245,458 | $95,732 |
| ME | $14,080,005 | $12,309,933 | $11,464,247 | $10,822,914 | $12,050,536 | $9,366,964 | $10,186,039 | $10,395,459 | $9,464,422 |
| MA | $65,020,184 | $64,152,683 | $52,129,610 | $48,164,703 | $47,268,256 | $41,237,285 | $42,624,942 | $41,421,318 | $40,454,349 |
| NH | $4,343,507 | $3,715,925 | $3,318,173 | $3,276,638 | $3,184,183 | $2,665,476 | $3,534,547 | $5,205,610 | $4,306,638 |
| RI | $6,971,015 | $8,150,757 | $7,457,243 | $4,838,032 | $5,613,998 | $5,527,044 | $4,924,134 | $3,018,019 | $2,038,594 |
| NJ | $708,091 | $511,135 | $719,633 | $662,121 | $636,116 | $873,485 | $805,938 | $474,001 | $304,439 |
| NY | $4,066,979 | $4,120,634 | $3,352,344 | $1,605,484 | $1,633,937 | $1,509,486 | $1,282,188 | $939,712 | $477,467 |
| Other | $2,239,204 | $1,234,655 | $1,256,223 | $962,629 | $805,639 | $565,236 | $378,248 | $381,566 | $25,876 |
| Total | $98,637,293 | $95,261,434 | $80,814,800 | $71,301,257 | $72,226,979 | $62,517,603 | $64,483,613 | $62,488,957 | $57,676,221 |

#### 6.5.3.3.4 Landings and Revenues by Port Group

In this section, landings and revenues are summarized by the place of landing, with individual ports grouped into a series of port groups first used to characterize fishing activity in Amendment 13 (Table 61 through Table 65). This is a different way of looking at the economic activity generated by groundfish fishing activity. Maine ports experienced a large drop in groundfish landings over the period FY 2001 through FY 2009, with the state as a whole seeing groundfish landings decline by 74 percent. In contrast, Coastal New Hampshire experienced only a 16 percent decrease, while Gloucester and the North Shore had a 25 percent increase (almost all since FY 2006), and Boston and the South Shore a 51 percent increase – with the increase occurring since FY 2006. With respect to revenues, only Gloucester/North Shore (+14 percent) and Boston/South Shore (+35 percent) increased groundfish revenues from FY 2001 to FY 2009. In spite of a smaller decrease in landed weight, New Hampshire port groundfish revenues declined by 26 percent from FY 2001 to FY 2009. New Bedford MA was the top groundfish port group through FY 2007, but by FY 2008 ceded the top ranking to Gloucester/North Shore MA.

When groundfish revenues and landings by homeport state are compared to the same data by port group, it is clear that some vessels in Maine and New Hampshire no longer land in those states. Given the changes in Gloucester and Boston, it is likely (though not yet confirmed) that vessels that used to land in Maine now land in other ports.

As with revenues by homeport state, the total revenues for individual DAS permits differs from the changes noted for groundfish revenues. Gloucester/North Shore and Boston/South Shore show a 13 percent and 41 percent increase in total revenues for groundfish permits. Coastal NH showed a 40 percent increase (although the high in FY 2005 was 32 percent higher than FY 2009), while Lower Mid-Coast Maine experienced a 60 percent decline in total revenues. New Bedford experienced a 37 percent increase (although there was a 23 percent decline from FY 2005 to FY 2009). Most other port groups experienced declines as well.

The number of multispecies permit holders landing groundfish generally declined in all the larger ports. In coastal New Hampshire, active permits in FY 2009 were only 48 percent of those in FY 2001. In Boston and the South Shore that number was 60 percent, it was also 60 percent in Gloucester and the North Shore, 48 percent in New Bedford, and the Cape and Islands was at only 23 percent of the number of active permits. Coastal Rhode Island had 61 percent as many active permits in FY 2009 as in FY 2001. The only port group that saw an increase in permit holders landing there was Downeast Maine, which had a 350 percent increase throughout the time period (but a small sample size – only 9 permits landed there in FY 2009).

**Table 61 – Total landings by port group of landing, FY 2001 – FY 2009. Note state totals include landings that are not attributed to a specific group.**

| | Port Group | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| ME | DOWNEAST ME | 607,957 | 512,139 | 1,370,037 | 1,400,914 | 999,460 | 974,648 | 2,340,763 | 1,332,093 | 1,868,214 |
| | LOWER MID-COAST ME | 86,291,510 | 48,763,435 | 57,138,362 | 47,631,628 | 42,162,367 | 39,424,712 | 29,357,297 | 28,051,707 | 40,551,569 |
| | ME | | | | | 12,000 | 44,426 | | 48 | |
| | SOUTHERN ME | 409,035 | 424,372 | 374,822 | 931,542 | 696,509 | 1,231,166 | 1,239,286 | 646,877 | 1,342,709 |
| | UPPER MID-COAST ME | 45,475,509 | 20,846,839 | 21,739,636 | 36,316,483 | 23,392,409 | 36,338,042 | 35,659,839 | 35,714,458 | 25,656,765 |
| ME Total | | 132,784,011 | 70,546,785 | 80,622,857 | 86,280,567 | 67,262,745 | 78,017,695 | 70,635,643 | 65,891,133 | 70,207,800 |
| MA | BOSTON AND SOUTH SHORE | 10,456,302 | 9,540,137 | 8,317,949 | 7,207,106 | 8,022,364 | 7,744,359 | 10,291,142 | 11,559,444 | 11,369,324 |
| | CAPE AND ISLANDS | 18,744,749 | 14,965,246 | 12,666,623 | 11,254,569 | 12,763,994 | 11,140,464 | 11,445,082 | 11,686,676 | 12,224,652 |
| | GLOUCESTER AND NORTH SHORE | 114,314,736 | 55,069,635 | 98,413,636 | 75,359,192 | 118,224,606 | 91,352,927 | 84,555,984 | 95,020,073 | 98,731,239 |
| | NEW BEDFORD COAST | 81,867,937 | 82,353,878 | 101,154,939 | 106,768,138 | 109,888,378 | 91,566,346 | 107,540,003 | 100,971,529 | 101,699,852 |
| MA Total | | 225,495,383 | 161,946,593 | 220,635,534 | 200,590,536 | 248,899,342 | 201,812,947 | 213,832,211 | 219,237,722 | 224,076,503 |
| NH | COASTAL NH | 13,944,028 | 18,220,967 | 23,343,645 | 21,883,121 | 18,425,372 | 9,181,470 | 7,955,796 | 7,045,528 | 11,937,713 |
| NH Total | | 13,944,028 | 18,220,967 | 23,343,645 | 21,883,121 | 18,908,003 | 9,181,470 | 8,029,992 | 7,366,561 | 12,308,506 |
| RI | COASTAL RI | 79,009,995 | 49,433,268 | 50,983,080 | 52,019,190 | 51,340,504 | 52,198,590 | 42,822,765 | 44,613,344 | 40,390,012 |
| | RI | | 114,000 | 650,822 | 285,212 | 346,228 | 51,194 | 96,093 | 111,210 | 2,122,455 |
| RI Total | | 79,009,995 | 49,547,268 | 51,633,902 | 52,304,402 | 51,686,732 | 52,249,784 | 42,918,858 | 44,724,554 | 42,512,467 |
| NY | LONG ISLAND NY | 22,558,582 | 20,447,040 | 18,375,148 | 17,311,641 | 14,000,770 | 15,201,028 | 12,610,637 | 13,164,231 | 15,127,572 |
| | NY | 16,654 | 4,422 | 5,647 | 691,185 | 232,669 | 101,936 | 514,548 | 96,270 | 296,012 |
| NY Total | | 22,575,236 | 20,451,462 | 18,380,795 | 18,002,826 | 14,233,439 | 15,302,964 | 13,125,185 | 13,266,567 | 15,443,413 |
| NJ | NJ | 1,296,046 | 226,238 | 12,589 | 7,082 | | 2,661 | 25,195 | | |
| | NORTHERN COASTAL NJ | 24,017,723 | 22,609,450 | 19,766,855 | 19,126,611 | 19,264,673 | 22,759,772 | 22,789,732 | 20,955,663 | 23,619,137 |
| | SOUTHERN COASTAL NJ | 49,755,926 | 55,551,760 | 61,286,494 | 76,976,729 | 56,520,214 | 37,206,644 | 53,072,364 | 75,364,292 | 58,961,500 |
| NJ Total | | 75,069,695 | 78,387,448 | 81,065,938 | 96,110,422 | 75,784,887 | 59,969,077 | 75,887,291 | 96,319,955 | 82,580,637 |
| CT | COASTAL CT | | 147,133 | 1,327,493 | | | | 1,498,766 | 3,961,481 | 4,377,667 |
| CT Total | | | 147,133 | 1,327,493 | | | | 1,498,766 | 4,007,557 | 4,576,897 |
| Other | | 57,379,970 | 40,839,368 | 36,770,908 | 34,778,868 | 25,790,478 | 19,869,144 | 15,047,982 | 20,698,506 | 16,233,687 |
| Total | | 606,258,318 | 440,087,024 | 513,781,072 | 509,956,857 | 502,566,330 | 436,403,081 | 440,975,928 | 471,512,869 | 467,939,910 |

**Table 62 – Total revenues (1999 dollars) by port group, FY 2001 – FY 2009**

| | Port Group | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| ME | DOWNEAST ME | $1,841,756 | $1,861,686 | $1,565,858 | $1,493,214 | $1,790,079 | $2,004,990 | $3,160,673 | $2,088,450 | $2,357,371 |
| | LOWER MID-COAST ME | $26,960,777 | $24,214,776 | $21,468,003 | $20,738,395 | $18,849,006 | $14,125,504 | $11,727,081 | $12,052,921 | $10,887,865 |
| | ME | | | | | $1,033 | $283 | | $323 | |
| | SOUTHERN ME | $363,648 | $463,259 | $356,085 | $883,034 | $804,490 | $1,514,532 | $1,220,372 | $880,403 | $1,162,712 |
| | UPPER MID-COAST ME | $5,531,333 | $3,988,340 | $3,648,877 | $3,769,537 | $4,270,165 | $5,143,643 | $6,270,437 | $8,537,322 | $8,790,977 |
| ME Total | | $34,697,513 | $30,528,060 | $27,038,823 | $26,884,179 | $25,714,772 | $22,804,063 | $22,870,774 | $23,963,277 | $23,694,937 |
| MA | BOSTON AND SOUTH SHORE | $8,784,135 | $10,806,196 | $9,205,128 | $8,580,074 | $11,752,031 | $12,482,215 | $13,788,998 | $12,743,678 | $12,393,509 |
| | CAPE AND ISLANDS | $19,566,974 | $16,027,211 | $15,035,559 | $13,624,301 | $22,050,918 | $17,568,145 | $15,185,292 | $13,599,958 | $13,110,641 |
| | GLOUCESTER AND NORTH SHORE | $31,318,638 | $27,533,121 | $30,353,512 | $25,991,808 | $40,115,317 | $35,244,102 | $35,098,496 | $34,111,982 | $35,354,488 |
| | NEW BEDFORD COAST | $137,369,392 | $153,726,636 | $155,861,625 | $188,540,437 | $244,956,563 | $238,374,839 | $220,807,559 | $178,138,396 | $188,318,753 |
| MA Total | | $197,174,488 | $208,147,476 | $210,513,640 | $236,746,245 | $318,874,829 | $303,706,791 | $284,880,345 | $238,594,013 | $249,200,519 |
| NH | COASTAL NH | $7,947,105 | $7,030,472 | $5,722,055 | $15,833,672 | $16,254,167 | $12,662,885 | $12,108,900 | $10,752,686 | $11,113,339 |
| NH Total | | $7,947,105 | $7,030,472 | $5,722,055 | $15,833,672 | $16,316,653 | $12,662,885 | $12,383,050 | $10,856,665 | $11,467,798 |
| RI | COASTAL RI | $33,069,263 | $29,055,085 | $30,485,588 | $32,174,669 | $44,421,188 | $49,126,857 | $33,356,541 | $27,726,903 | $23,018,561 |
| | RI | | $10,024 | $37,726 | $32,021 | $45,045 | $91,324 | $211,795 | $137,390 | $68,837 |
| RI Total | | $33,069,263 | $29,065,109 | $30,523,314 | $32,206,690 | $44,466,233 | $49,218,182 | $33,568,336 | $27,864,293 | $23,087,398 |
| NY | LONG ISLAND NY | $18,951,602 | $17,191,381 | $15,872,243 | $15,854,244 | $17,663,580 | $17,878,960 | $15,526,791 | $14,872,368 | $15,005,072 |
| | NY | $11,803 | $5,568 | $5,139 | $438,670 | $175,014 | $58,702 | $339,563 | $49,994 | $142,216 |
| NY Total | | $18,963,405 | $17,196,949 | $15,877,382 | $16,292,914 | $17,838,593 | $17,937,661 | $15,866,354 | $14,936,078 | $15,168,877 |
| NJ | NJ | $892,437 | $216,298 | $18,074 | $4,644 | | $14,078 | $133,137 | | |
| | NORTHERN COASTAL NJ | $23,185,875 | $24,435,522 | $26,241,720 | $29,008,811 | $39,462,676 | $34,961,114 | $35,351,408 | $31,143,948 | $28,143,708 |
| | SOUTHERN COASTAL NJ | $26,453,501 | $28,914,474 | $37,040,064 | $57,706,780 | $52,752,401 | $37,382,588 | $52,777,491 | $59,457,230 | $55,169,917 |
| NJ Total | | $50,531,813 | $53,566,294 | $63,299,858 | $86,720,235 | $92,215,077 | $72,357,779 | $88,262,036 | $90,601,178 | $83,313,626 |
| CT | COASTAL CT | | $14,839 | $1,817,751 | | | | $3,380,732 | $8,424,792 | $8,604,231 |
| CT Total | | | $14,839 | $1,817,751 | | | | $3,380,732 | $8,468,218 | $8,725,525 |
| Other | | $50,642,359 | $58,297,215 | $67,467,079 | $79,410,102 | $68,202,903 | $50,207,848 | $46,203,314 | $48,158,141 | $43,135,438 |
| Total | | $393,025,947 | $403,846,414 | $422,259,902 | $494,114,235 | $583,632,255 | $528,895,209 | $507,414,941 | $463,441,982 | $457,794,119 |

**Table 63 – Groundfish landings by port group, FY 2001 – FY 2009**

| | Port Group | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| ME | DOWNEAST ME | Conf. | Conf. | | | 2,815 | 1,780 | 3,191 | 3,884 | 6,690 |
| | LOWER MID-COAST ME | 18,548,510 | 14,065,240 | 13,844,756 | 13,822,854 | 11,390,361 | 6,913,858 | 7,220,350 | 6,792,606 | 4,609,448 |
| | ME | | | | | | | | 48 | |
| | SOUTHERN ME | 360,248 | 261,089 | 299,639 | 559,631 | 458,892 | 272,039 | 228,630 | 71,651 | 360,124 |
| | UPPER MID-COAST ME | 1,776,235 | 1,495,340 | 1,453,711 | 651,447 | 581,538 | 50,783 | 150,556 | 162,746 | 358,630 |
| ME Total | | 20,684,993 | 15,821,669 | 15,598,106 | 15,033,932 | 12,433,606 | 7,240,219 | 7,602,727 | 7,031,705 | 5,336,335 |
| MA | BOSTON AND SOUTH SHORE | 5,974,231 | 5,907,806 | 5,650,258 | 5,216,066 | 5,091,528 | 4,351,885 | 7,947,857 | 9,134,345 | 9,021,914 |
| | CAPE AND ISLANDS | 8,140,487 | 4,992,069 | 4,346,465 | 3,941,488 | 3,466,607 | 1,975,394 | 2,624,889 | 3,143,801 | 3,294,815 |
| | GLOUCESTER AND NORTH SHORE | 18,390,780 | 15,808,691 | 16,777,975 | 14,708,843 | 15,429,355 | 14,235,393 | 19,044,659 | 22,750,685 | 22,975,212 |
| | NEW BEDFORD COAST | 40,733,040 | 34,236,222 | 31,697,104 | 31,436,468 | 22,076,741 | 13,975,919 | 15,240,663 | 18,565,310 | 17,838,425 |
| MA Total | | 73,333,041 | 60,953,767 | 58,471,802 | 55,302,865 | 46,064,231 | 34,538,591 | 44,858,068 | 53,594,141 | 53,130,366 |
| NH | COASTAL NH | 3,881,879 | 2,625,237 | 2,926,183 | 3,520,796 | 3,270,963 | 3,248,560 | 2,915,213 | 3,648,770 | 3,265,447 |
| NH Total | | 3,881,879 | 2,625,237 | 2,926,183 | 3,520,796 | 3,270,963 | 3,248,560 | 2,933,814 | 3,657,890 | 3,606,699 |
| RI | COASTAL RI | 3,582,482 | 3,224,566 | 2,859,158 | 2,645,309 | 1,876,245 | 2,334,131 | 2,568,854 | 1,704,956 | 1,186,785 |
| | RI | 3,582,482 | 3,224,566 | 2,859,158 | 2,645,309 | 1,876,245 | 2,334,417 | 2,568,854 | 1,705,003 | 1,186,999 |
| RI Total | | 3,582,482 | 3,224,566 | 2,859,158 | 2,645,309 | 1,876,245 | 2,334,417 | 2,568,854 | 1,705,003 | 1,186,999 |
| NY | LONG ISLAND NY | 1,319,273 | 584,058 | 658,362 | 357,407 | 323,905 | 568,942 | 498,920 | 336,225 | 152,169 |
| | NY | Conf. | 1,746 | | Conf. | Conf. | Conf. | | | 674 |
| NY Total | | 1,319,373 | 585,804 | 658,362 | 358,877 | 324,175 | 569,002 | 498,920 | 336,707 | 153,067 |
| NJ | NJ | Conf. | | | | | | | | |
| | NORTHERN COASTAL NJ | 578,599 | 262,028 | 498,746 | 407,040 | 296,113 | 450,506 | 423,277 | 216,855 | 10,740 |
| | SOUTHERN COASTAL NJ | 5,217 | 2,238 | 1,278 | 2,704 | 1,437 | 4,406 | 3,669 | 707 | 24,338 |
| NJ Total | | 583,816 | 264,266 | 500,024 | 409,744 | 297,550 | 454,912 | 426,946 | 217,562 | 35,078 |
| CT | COASTAL CT | | | 6,003 | | | | 34,238 | 100,171 | 27,155 |
| CT Total | | | | 6,003 | | | | 34,238 | 100,171 | 27,155 |
| Other | | 3,601 | 1,620 | 3,841 | 10,029 | 2,548 | 1,301 | 870 | 1,445 | 1,302 |
| Total | | 103,418,293 | 83,477,219 | 81,023,479 | 77,281,552 | 64,269,318 | 48,387,002 | 58,924,437 | 66,644,624 | 63,477,001 |

**Table 64 – Groundfish revenues (1999 dollars) by port group**

| | Port Group | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| ME | DOWNEAST ME | Conf. | Conf. | | | $11,443 | $7,640 | $13,113 | $15,655 | $24,637 |
| | LOWER MID-COAST ME | $17,072,559 | $14,930,932 | $12,514,645 | $12,306,848 | $11,752,197 | $7,741,772 | $6,703,526 | $7,182,142 | $3,686,562 |
| | ME | | | | | | | | $323 | |
| | SOUTHERN ME | $316,120 | $291,448 | $259,009 | $583,903 | $455,095 | $303,841 | $214,573 | $59,038 | $274,279 |
| | UPPER MID-COAST ME | $1,534,707 | $1,544,064 | $1,315,051 | $547,824 | $645,058 | $66,849 | $182,348 | $152,130 | $272,346 |
| ME Total | | $18,947,094 | $16,766,731 | $14,088,704 | $13,438,575 | $12,863,794 | $8,123,764 | $7,113,559 | $7,410,238 | $4,260,664 |
| MA | BOSTON AND SOUTH SHORE | $5,892,094 | $7,126,012 | $6,326,092 | $5,455,998 | $6,085,710 | $5,956,670 | $7,946,000 | $7,944,989 | $7,964,457 |
| | CAPE AND ISLANDS | $8,333,913 | $6,434,570 | $4,919,719 | $4,792,674 | $4,748,862 | $2,990,911 | $3,624,090 | $3,239,667 | $3,296,215 |
| | GLOUCESTER AND NORTH SHORE | $18,324,684 | $18,678,838 | $18,002,399 | $15,340,838 | $18,017,107 | $16,837,096 | $18,366,900 | $19,165,107 | $20,979,663 |
| | NEW BEDFORD COAST | $38,358,940 | $38,389,226 | $30,448,335 | $25,796,892 | $24,186,247 | $20,543,177 | $19,899,518 | $19,009,186 | $16,718,578 |
| MA Total | | $71,013,353 | $70,644,631 | $59,696,545 | $51,386,401 | $53,037,927 | $46,327,853 | $49,836,509 | $49,358,948 | $48,958,913 |
| NH | COASTAL NH | $3,673,222 | $3,131,381 | $2,826,691 | $3,438,552 | $3,126,812 | $2,730,512 | $2,385,931 | $2,845,531 | $2,730,393 |
| NH Total | | $3,673,222 | $3,131,381 | $2,826,691 | $3,438,552 | $3,126,812 | $2,730,512 | $2,397,925 | $2,853,063 | $3,030,093 |
| RI | COASTAL RI | $3,299,551 | $3,703,841 | $2,871,007 | $2,152,964 | $2,340,605 | $3,770,813 | $3,654,369 | $2,026,543 | $1,189,509 |
| | RI | $3,299,551 | $3,703,841 | $2,871,007 | $2,152,964 | $2,340,605 | $3,771,153 | $3,654,369 | $2,026,625 | $1,189,774 |
| NY | LONG ISLAND | $1,214,417 | $696,270 | $739,255 | $389,164 | $441,206 | $831,152 | $729,412 | $404,081 | $171,157 |
| | NY | Conf. | $1,609 | | Conf. | Conf. | Conf. | | | $449 |
| NY Total | | $1,214,417 | $697,880 | $739,255 | $389,164 | $441,206 | $831,152 | $729,412 | $404,711 | $171,880 |
| NJ | NJ | Conf. | | | | | | | | |
| | NORTHERN COASTAL NJ | $485,725 | $313,869 | $584,559 | $481,599 | $413,679 | $725,030 | $690,092 | $308,693 | $7,974 |
| | SOUTHERN COASTAL NJ | $2,172 | $1,971 | $1,270 | $3,261 | $1,314 | $6,804 | $3,215 | $703 | $23,554 |
| NJ Total | | $487,896 | $315,840 | $585,828 | $484,859 | $414,993 | $731,834 | $693,307 | $309,395 | $31,528 |
| CT | COASTAL CT | | | $5,029 | | | | $58,136 | $124,944 | $32,211 |
| CT Total | | | | $5,029 | | | | $58,136 | $124,944 | $32,211 |
| Other | | $1,474 | $1,131 | $1,740 | $10,236 | $1,299 | $1,283 | $395 | $1,033 | $1,158 |
| Total | | $98,637,293 | $95,261,434 | $80,814,800 | $71,301,257 | $72,226,979 | $62,517,603 | $64,483,613 | $62,488,957 | $57,676,221 |

**Table 65 – Number of multispecies permit holders landing groundfish, by landing port group (FY 2001 – FY 2009) for major groundfish states.**

| State | | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| ME | Downeast | 2 | 1 | 0 | 0 | 4 | 4 | 6 | 6 | 9 |
| | Lower MidCoast | 148 | 139 | 130 | 115 | 111 | 96 | 77 | 77 | 54 |
| | Southern ME | 17 | 17 | 10 | 17 | 16 | 11 | 10 | 8 | 10 |
| | Upper Midcoast | 31 | 36 | 30 | 22 | 25 | 13 | 12 | 32 | 21 |
| | Other ME | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 1 |
| NH | Coastal NH | 106 | 112 | 82 | 78 | 65 | 58 | 48 | 48 | 51 |
| | Other NH | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 19 |
| MA | Boston and South Shore | 96 | 85 | 93 | 74 | 65 | 60 | 64 | 58 | 58 |
| | Cape and Islands | 252 | 210 | 186 | 152 | 125 | 93 | 83 | 75 | 58 |
| | Gloucester and North Shore | 294 | 277 | 257 | 218 | 220 | 177 | 175 | 181 | 176 |
| | New Bedford/Fairhaven | 232 | 220 | 232 | 183 | 160 | 158 | 166 | 126 | 111 |
| | Other MA | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RI | Coastal RI | 144 | 120 | 117 | 108 | 112 | 109 | 99 | 98 | 88 |
| | Other RI | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| CT | | | | 5 | | | | 8 | 22 | 19 |
| NY | Long Island | 114 | 98 | 96 | 80 | 71 | 89 | 81 | 71 | 64 |
| | Other NY | 1 | 3 | 0 | 2 | 2 | 1 | 0 | 4 | 5 |
| NJ | Northern NJ | 51 | 38 | 43 | 39 | 43 | 48 | 42 | 41 | 14 |
| | Southern NJ | 16 | 8 | 13 | 8 | 6 | 12 | 9 | 7 | 13 |
| | Other NJ | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

#### 6.5.3.3.5 Distribution of Groundfish Landings

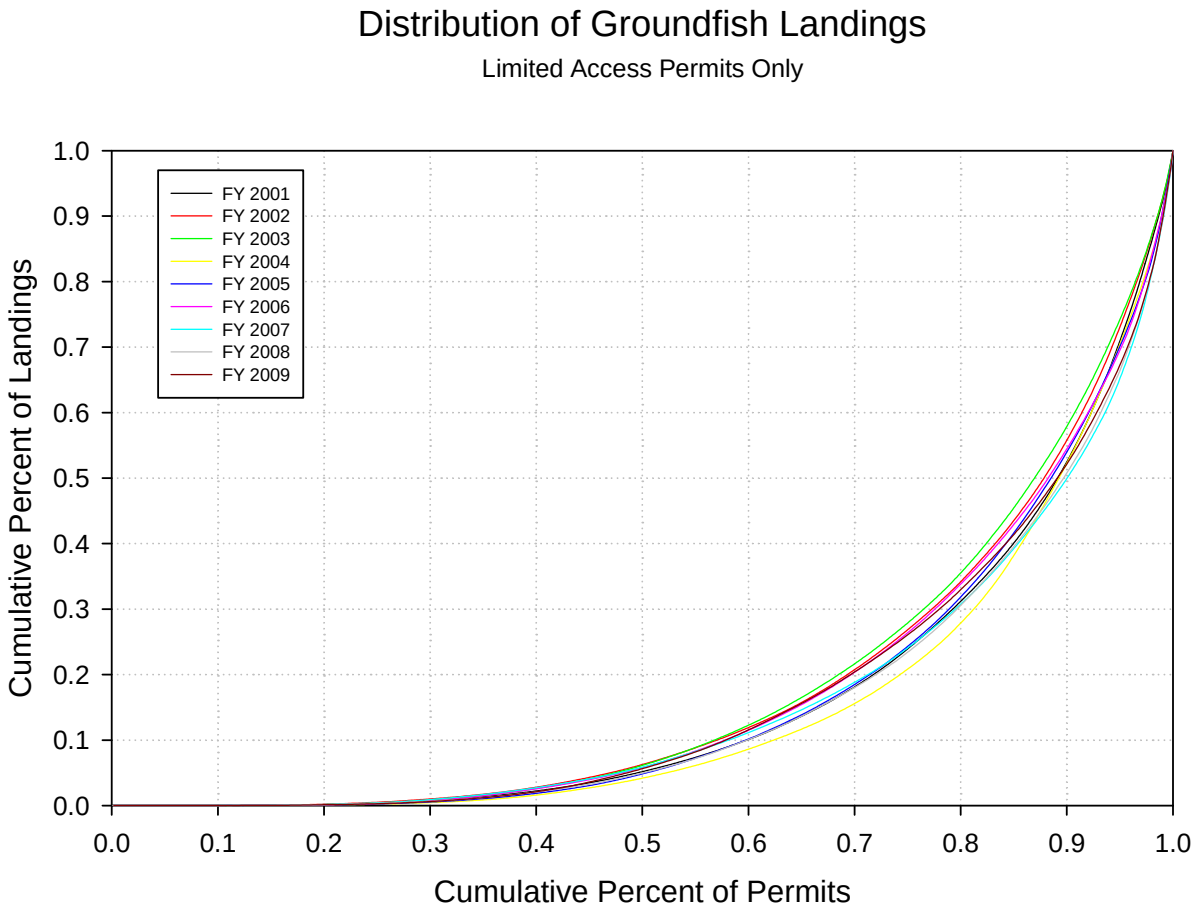
Table 66 shows the distribution of regulated groundfish landings of active limited access permits – that is, permits that landed groundfish in a given year, as opposed to all groundfish permits. Overall, the number of limited access permits landing groundfish has declined by 53 percent since FY 2001. At the same time, groundfish landings have also declined (see Table 49). The groundfish landings at each percentile of the number of permits has increased, as has the average groundfish landings per active permit. Median groundfish landings increased by 64 percent since FY 2001; at the 25$^{th}$ percentile the increase was even higher, at 85 percent. The top 10th percentile of landings increased by only 8 percent.

Figure 31 summarizes the cumulative distribution of groundfish landings by active limited access permit holders. While there is some year to year variability, in all years roughly half the landings were attributed to between 10 and 15 percent of the active permits. Between 70 to 75 percent of the active limited access permits accounted for only 20 percent of the landings in all years.

**Table 66 – Distribution of groundfish landings by active limited access permit holders, FY 2001 – FY 2009**

| Percent of Active Permits | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| 10% | 479 | 538 | 395 | 421 | 364 | 451 | 715 | 682 | 692 |
| 25% | 5,628 | 7,064 | 6,218 | 5,214 | 5,731 | 6,043 | 10,041 | 8,594 | 10,419 |
| Median | 39,467 | 41,655 | 44,817 | 36,337 | 40,745 | 35,093 | 46,654 | 51,527 | 64,615 |
| 75% | 133,503 | 121,030 | 125,203 | 121,871 | 122,167 | 99,614 | 122,129 | 155,673 | 164,746 |
| 90% | 298,212 | 259,684 | 260,213 | 299,812 | 246,847 | 192,652 | 246,567 | 305,669 | 322,842 |
| Average | 200,796 | 182,120 | 184,993 | 199,642 | 182,447 | 149,288 | 203,040 | 245,394 | 264,572 |
| # Permits | 1024 | 913 | 872 | 769 | 702 | 642 | 576 | 540 | 477 |

**Figure 31 – Cumulative distribution of groundfish landings by active limited access permit, FY 2001 – FY 2009**




### 6.5.3.4 Effort in the Commercial Fishery

Amendment 16 management measures were expected to reduce fishing effort, either by reducing the number of DAS allocated to common pool vessels or through the increased efficiency of fishing in sectors. The amendment was targeting mortality reductions for several stocks that ranged from about 40 percent to 66 percent. For common pool vessels, DAS allocations were reduced by 50 percent from FW 42 allocations and all DAS were to be counted using a 24-hour DAS clock. Analyses in the amendment suggested sector trawl vessels would reduce effort 40 percent solely due to the increased efficiency that resulted from trip limit exemptions.

In order to get a preliminary indication whether fishing effort declined as expected, DAS/VMS trip declaration data were queried to determine the number of permits that declared the start of a multispecies trip, the number of trips, and the total time at sea (note that this is different than the DAS charged). The data was summarized by vessel size for the period May 1 – October 15 for fishing years 2008 through 2010. The data was analyzed for the fishery as a whole and was not subdivided by sector and non-sector fishing activity. Results are summarized in Table 67 for the three largest length groups. Data for vessels less than 30 feet is not reported due to data confidentiality restrictions, but these data reflect only a fraction of fishing activity.

With respect to the number of permits that declared the start of a trip, the overall total is 41 percent lower than in FY 2008. Overall, time at sea during this period declined by 36 percent and the number of trips declined by 45 percent. For all three length groups, the number of trips declared declined in 2010 compared to 2008. The relative change by size group shows vessels 75 feet and over showing the least change since FY 2008 and vessels 50 to 75 feet showing the largest decline. Time at sea was reduced significantly for vessels between 30 and 75 feet, but increased by 6 percent for the vessels over 75 feet. The largest decline for both of these factors was for the 50 to 75 foot vessels, while least change was for the vessels 75 feet and over. Vessels in the 50 to 75 foot size group appear to be using 44 percent of the fishing effort they used in FY 2008. Average trip length in all length groups remained constant for vessels in the smallest group but increased overall by 17 percent.

These results suggest that in the first six and a half months of FY 2010 overall fishing effort declined as expected by Amendment 16 analysis. Since vessel trip costs should be lower with less time at sea, when these data are combined with the revenue data (see Table 67 which shows revenues increased from 2009 to 2010) the revenues per trip available to service fixed costs may have increased. These increases only directly benefit the vessels that are still fishing. The data also suggest that the smaller length groups have had larger reductions in the number of trips than the vessels over 75 feet in length. In 2008 and 2009, the two smaller length groups accounted for 96 percent of trips and 75 to 78 percent of the time at sea during this period. In 2010 these vessels accounted for 94 percent of trips but only 64 percent of the time at sea. Vessel costs have likely increased for some sector vessels in order to pay for the leasing of ACE by sector vessels and sector administrative costs, or the leasing of DAS for common pool vessels; what is unknown is whether these increases absorb the increase in the trip margin.

**Table 67 – Number of Permits, Trips Declared, and Time at Sea 2008 – 2010**

| | May 1 – October 15 | | | | |
|---|---|---|---|---|---|
| **Permits** | 2008 | 2009 | 2010 | Change, 08-09 | Change, 08-10 |
| 30 TO LESS THAN 50 | 295 | 274 | 170 | -7% | -42% |
| 50 TO LESS THAN 75 | 158 | 120 | 81 | -24% | -49% |
| 75 AND OVER | 63 | 64 | 51 | 2% | -19% |
| Total | 516 | 458 | 302 | -11% | -41% |
| **Trips Declared** | | | | | |
| 30 TO LESS THAN 50 | 9,590 | 10,139 | 5,393 | 6% | -44% |
| 50 TO LESS THAN 75 | 2,656 | 1,951 | 1,156 | -27% | -56% |
| 75 AND OVER | 462 | 431 | 441 | -7% | -5% |
| Total | 12,708 | 12,521 | 6,990 | -1% | -45% |
| **Time at Sea (not DAS charged)** | | | | | |
| 30 TO LESS THAN 50 | 4,813 | 4,536 | 2,704 | -6% | -44% |
| 50 TO LESS THAN 75 | 4,423 | 3,325 | 2,176 | -25% | -51% |
| 75 AND OVER | 2,595 | 2,562 | 2,740 | -1% | 6% |
| Total | 11,832 | 10,424 | 7,620 | -12% | -36% |
| **Average Trip Length** | | | | | |
| 30 TO LESS THAN 50 | 0.502 | 0.447 | 0.5 | -11% | 0% |
| 50 TO LESS THAN 75 | 1.665 | 1.704 | 1.88 | 2% | 13% |
| 75 AND OVER | 5.617 | 5.944 | 6.21 | 6% | 11% |
| Total | 0.931 | 0.832 | 1.09 | -11% | 17% |

### 6.5.3.5 Handgear A Fishing Activity

The Handgear A fishery is a very small component of the groundfish fleet. Permits participating in the Handgear A fishery landed 0.24 percent of all groundfish in the fishery in FY 2009 (Table 51). The average length of Handgear A vessels is 28 feet. Landings and revenues for Handgear A permits were by far the greatest in Massachusetts in all years from FY 2006 through FY 2009 (Table 68). New Hampshire was the only other state with significant landings and revenues from the permit category. Pounds landed increased substantially in both states in every year from FY 2006 through FY 2009, while revenue increased in Massachusetts and decreased in New Hampshire. In Massachusetts, the fishery landed three times as many pounds of groundfish in FY 2009 as in FY 2006, and earned slightly more than twice as much revenue. In New Hampshire, FY 2009 landings were also roughly three times FY 2006 levels, but nominal revenues in FY 2009 were just slightly lower than in FY 2006.

**Table 68 – Landings and Revenues for Handgear A permits by Landing State, FY 2006-2009**

| | | | | | FY | | | |
|---|---|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2006 | 2007 | 2008 | 2009 |
| **Landing State** | **Live Pounds Landed** | | | | **Nominal Revenues** | | | |
| Maine | | Conf. | 174 | | | Conf. | $251 | |
| Massachusetts | 36,946 | 49,295 | 77,199 | 113,483 | $65,191 | $77,519 | $101,921 | $137,433 |
| New Hampshire | 3,366 | 3,588 | 9,325 | 4,075 | $4,842 | $5,846 | $12,997 | $4,537 |
| Grand Total | 40,312 | 52,883 | 86,698 | 117,558 | $70,033 | $83,365 | $115,169 | $141,970 |

*Other states cannot be shown due to data confidentiality restrictions. This also restricts showing data by stock.

The number of permits landing cod in the Handgear A category stayed relatively constant from FY 2006 to FY 2009. Maine had between zero and three permits, Massachusetts varied between twelve and nineteen, and New Hampshire had four to five (Table 69).

**Table 69 – Handgear A Permits Landing Cod with Handline or Longline (Tub Trawl), by Landing State, FY 2006-2009**

| **FY** | **2006** | **2007** | **2008** | **2009** |
|---|---|---|---|---|
| Maine | 0 | 1 | 3 | 0 |
| Massachusetts | 16 | 12 | 19 | 19 |
| New Hampshire | 4 | 4 | 4 | 5 |

Total landings and revenues, as well as groundfish landings and revenues, for Handgear A vessels in all states increased from FY 2006 to FY 2009 (Table 70). Groundfish landings in FY 2009 were 220 percent higher than in FY 2006, and groundfish revenues were 130 percent higher. The percentage of total revenues for these vessels that came from groundfish also generally increased throughout the time series, from 24 to 37 percent.

**Table 70 – Total and Groundfish-Only Landings and Revenues for Handgear A Vessels, FY 2006-2009**

| | FY | | | |
|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 |
| Total Landings (live weight) | 170,588 | 139,761 | 246,034 | 278,595 |
| Total Revenues | $305,507 | $279,701 | $456,112 | $448,676 |
| Groundfish Landings (live weight) | 41,939 | 59,287 | 96,334 | 134,289 |
| Groundfish Revenues | $71,801 | $92,295 | $133,273 | $165,090 |
| Groundfish as Percent of Total Revenues | 24% | 33% | 29% | 37% |

Handgear A permits hold a relatively small percentage of ACE for all groundfish stocks, shown in Table 71. When the PSC of individual permit holders are totaled, the stock with the greatest PSC from handgear vessels is GOM cod, equaling eight-tenths of one percent of all ACE. Only GOM cod, GB cod, CC/GOM yellowtail flounder, pollock, and white hake have greater than one hundredth of one percent allocated to the handgear fishery.

**Table 71 – Total PSC Held by Handgear A Permits for Allocated Groundfish Stocks and 2010 ACE (in lbs.)**

| Stock | Handgear A PSC | 2010 ACE |
|---|---|---|
| GOM Cod | 0.00809525 | 79,972 |
| GB Cod | 0.00330745 | 20,315 |
| GOM Haddock | 0.00098190 | 1,866 |
| GB Haddock | 0.00025988 | 23,169 |
| CC/GOM Yellowtail Flounder | 0.00218393 | 3,751 |
| GB Yellowtail Flounder | 0.00030281 | 738 |
| SNE/MA Yellowtail Flounder | 0.00015930 | 148 |
| Pollock | 0.00248868 | 15,077 |
| Redfish | 0.00085822 | 12,953 |
| White Hake | 0.00173518 | 9,778 |
| American Plaice | 0.00057133 | 3,587 |
| GOM Winter Flounder | 0.00079898 | 278 |
| GB Winter Flounder | 0.00011705 | 478 |
| Witch Flounder | 0.00089422 | 1,680 |

*PSCs in this table are current as of September 18, 2010

#### 6.5.3.6 Sector Fishing Activity

The widespread adoption of sectors with the implementation of Amendment 16 on May 1, 2010 was generally expected to produce changes in the fishery. While it early to know what, if any, aspects of the fishery have changed, the following tables show comparisons between the first three months of FY 2009 and FY 2010. These data were developed by NOAA's National Marine Fisheries Service (NMFS) and are the best available. Data sources for this report include: (1) Vessels via VMS; (2) Vessels via vessel logbook reports; (3) Dealers via Dealer Electronic reporting. Differences with previous reports are due to corrections made to the database.

Table 72 shows landings and revenue data for groundfish trips in the first three months of FY 2010. Note that the table only presents two years of data and thus has limited ability to demonstrate long-term changes in the fishery. The data also lacks an adjustment for inflation.

**Table 72 – Sector Groundfish Landings and Revenue, 2009 – 2010 by Stock (First Three Months, Groundfish Trips Only)**

| STOCK | May 1 - August 31 | | | | | |
|---|---|---|---|---|---|---|
| | Landings | | | Revenue | | |
| | 2009 (Metric Tons) | 2010 (Metric Tons) | 2010 as Percent of 2009 (%) | 2009 ($000) | 2010 ($000) | 2010 as Percent of 2009 (%) |
| GB Cod | 1,228 | 910 | 74.1 | 2,985 | 3,466 | 116.1 |
| GOM Cod | 2,315 | 1,335 | 57.7 | 5,180 | 5,165 | 99.7 |
| Plaice | 359 | 356 | 99.3 | 823 | 977 | 118.8 |
| GB Winter Flounder | 725 | 692 | 95.4 | 2,486 | 2,858 | 115.0 |
| GOM Winter Flounder | 46 | 18 | 39.3 | 157 | 80 | 51.0 |
| SNE/MA Winter Flounder | 70 | 11 | 15.6 | 222 | 48 | 21.6 |
| Witch Flounder | 313 | 172 | 54.9 | 1,287 | 948 | 73.6 |
| CC/GOM Yellowtail Flounder | 101 | 56 | 55.7 | 247 | 175 | 70.8 |
| GB Yellowtail Flounder | 435 | 296 | 68.1 | 1,001 | 894 | 89.3 |
| SNE/MA Yellowtail Flounder | 28 | 8 | 29.6 | 67 | 23 | 34.8 |
| GB Haddock | 1,696 | 3,107 | 183.2 | 3,785 | 6,988 | 184.6 |
| GOM Haddock | 72 | 79 | 109.3 | 152 | 174 | 114.5 |
| White Hake | 574 | 473 | 82.5 | 1,039 | 1,145 | 110.2 |
| Pollock | 2,227 | 1,141 | 51.3 | 2,740 | 2,378 | 86.8 |
| Redfish | 431 | 617 | 143.1 | 415 | 642 | 154.4 |
| Northern Windowpane | 10 | 9 | 85.4 | 12 | 10 | 81.8 |
| Southern Windowpane | 0 | 0 | 0.0 | 1 | 0 | 17.3 |
| Ocean Pout | 0 | 0 | 0.0 | 0 | 1 | 0.0 |
| Halibut | 3 | 3 | 85.6 | 28 | 32 | 111.7 |
| Wolffish | 22 | 0 | 1.2 | 29 | 0 | 1.7 |
| **Total** | **10,657** | **9,284** | **87.1** | **22,655** | **26,004** | **114.8** |

Landings in live weight
Landings include estimate of missing dealer reports
Revenue based on dealer-reported average prices for species
Source: NMFS Northeast Regional Office
Run Date: October 1, 2010

In comparing the first three months of FY 2009 and FY 2010, landings of most groundfish stocks appeared to be lower in 2010. Exceptions were GB haddock, GOM haddock, and redfish. Revenue appeared to increase on most stocks, with the exceptions of several stocks that had significantly reduced catch limits in FY 2010 (most flounders and Atlantic wolffish, for example).

**Table 73 - Sector Groundfish Landings and Revenue, 2009 - 2010 by Principal Port (First Three Months, Groundfish Trips Only)**

| State | May 1 - August 31 | | | | | |
|---|---|---|---|---|---|---|
| | Groundfish Landings | | | Revenue | | |
| | 2009 (mt) | 2010 (mt) | 2010 as percent of 2009 (%) | 2009 ($000) | 2010 ($000) | 2010 as percent of 2009 (%) |
| Portland, ME | 675 | 1,177 | 174.4 | 1,169 | 2,358 | 201.7 |
| Other ME | 956 | 501 | 52.4 | 1,723 | 1,472 | 85.4 |
| ME Total | 1,630 | 1,678 | 102.9 | 2,892 | 3,830 | 132.4 |
| Gloucester, MA | 2,011 | 1,595 | 79.3 | 4,077 | 4,781 | 117.3 |
| New Bedford, MA | 2,370 | 2,390 | 100.8 | 5,908 | 7,114 | 120.4 |
| Other MA | 2,644 | 2,115 | 80 | 5,267 | 6,006 | 114 |
| MA Total | 7,025 | 6,099 | 86.8 | 15,251 | 17,901 | 117.4 |
| New Hampshire | 968 | 431 | 44.6 | 1,803 | 1,384 | 76.8 |
| Rhode Island | 661 | 662 | 100.1 | 1,723 | 1,769 | 102.7 |
| Connecticut | 39 | 3 | 7.9 | 107 | 9 | 8.5 |
| New York | 27 | 153 | 559.1 | 79 | 427 | 543 |
| New Jersey | 27 | - | 0 | 47 | 0 | 0 |
| Other Northeast | 279 | 257 | 92.4 | 753 | 684 | 90.9 |
| **Total** | **10,657** | **9,284** | **87.1** | **22,655** | **26,004** | **114.8** |

**Includes unspecified ports
Vessels indicating 2010 principal port on permit application
Landings in live weight
Landings include estimate of missing dealer reports
Revenue based on dealer-reported average prices for species
Source: NMFS Northeast Regional Office
Run Date: October 1, 2010

Landings and revenues of groundfish by sector vessels with home ports in each New England state is shown in Table 73. Vessels with a home port of Portland ME and New York saw the largest increase in landings and revenues between the beginning of FY 2009 and the beginning of FY 2010. Rhode Island stayed roughly the same between the two years, while New Hampshire saw a large decrease in landings and a smaller but substantial decrease in revenue. The Massachusetts ports had approximately similar or slightly fewer landings in FY 2010 than FY 2009, but revenues in those ports increased by 14 to 20 percent. Vessels with home ports in Maine outside of Portland saw approximately a 50 percent decrease in landings and a 15 percent decrease in revenues in FY 2010 over FY 2009.

**Table 74 - Sector Groundfish Landings and Revenue, 2009 – 2010 by Landing Port (First Three Months, Groundfish Trips Only)**

| Landing Port of Vessel | May 1 - August 31 | | | | | |
|---|---|---|---|---|---|---|
| | Groundfish Landings | | | Revenue | | |
| | 2009 (mt) | 2010 (mt) | 2010 as percent of 2009 (%) | 2009 ($000) | 2010 ($000) | 2010 as percent of 2009 (%) |
| Portland, ME | 908 | 556 | 61.2 | 1,558 | 1,451 | 93.1 |
| Other ME | 438 | 260 | 59.3 | 809 | 769 | 95.1 |
| ME Total | 1,346 | 816 | 60.6 | 2,366 | 2,219 | 93.8 |
| Gloucester, MA | 2,684 | 2,547 | 94.9 | 5,384 | 6,817 | 126.6 |
| New Bedford, MA | 3,121 | 3,392 | 108.7 | 7,802 | 9,705 | 124.4 |
| Other MA | 2,316 | 1,891 | 81.6 | 4,577 | 5,303 | 115.9 |
| MA Total | 8,121 | 7,831 | 96.4 | 17,764 | 21,825 | 122.9 |
| New Hampshire | 753 | 328 | 43.6 | 1,406 | 1,113 | 79.2 |
| Rhode Island | 409 | 266 | 64.9 | 1,048 | 729 | 69.6 |
| Connecticut | 8 | 3 | 39.1 | 26 | 9 | 35.2 |
| New York | - | 40 | 0 | 0 | 108 | 0 |
| New Jersey | 2 | - | 0 | 4 | 0 | 0 |
| Other Northeast | 19 | - | 0 | 42 | 0 | 0 |
| **Total** | **10,657** | **9,284** | **87.1** | **22,655** | **26,004** | **114.8** |

**Includes unspecified ports
Landing port if available, else principal port indicated on vessel permit application
Landings in live weight
Landings include estimate of missing dealer reports
Revenue based on dealer-reported average prices for species
Source: NMFS Northeast Regional Office
Run Date: October 1, 2010

Table 74 shows groundfish landings and revenue by sector vessels in each port of landing. New Bedford was the port with highest landings and revenues in both years. Landings and revenues in the first three months in Maine, New Hampshire, Rhode Island, and Connecticut all decreased in 2010 compared to 2009 levels. The Massachusetts landing ports fared much better, with landings increasing in New Bedford but slightly decreasing elsewhere in the state and revenues increasing in Gloucester, New Bedford, other MA ports, and in MA as a whole. Across the fishery, the landings had decreased slightly in FY 2010 but revenue had increased.

### 6.5.3.7 Sector ACE Transfers

One of the features of the sector program is that sectors are allowed to transfer ACE between each other. Transfers are viewed as a business decision between sectors and there are few regulations governing their use beyond those required for reporting and approving transfers. Data confidentiality limitations prevent reporting individual transfers but this section provides a general overview of transfer activity in the first half of FY 2010.

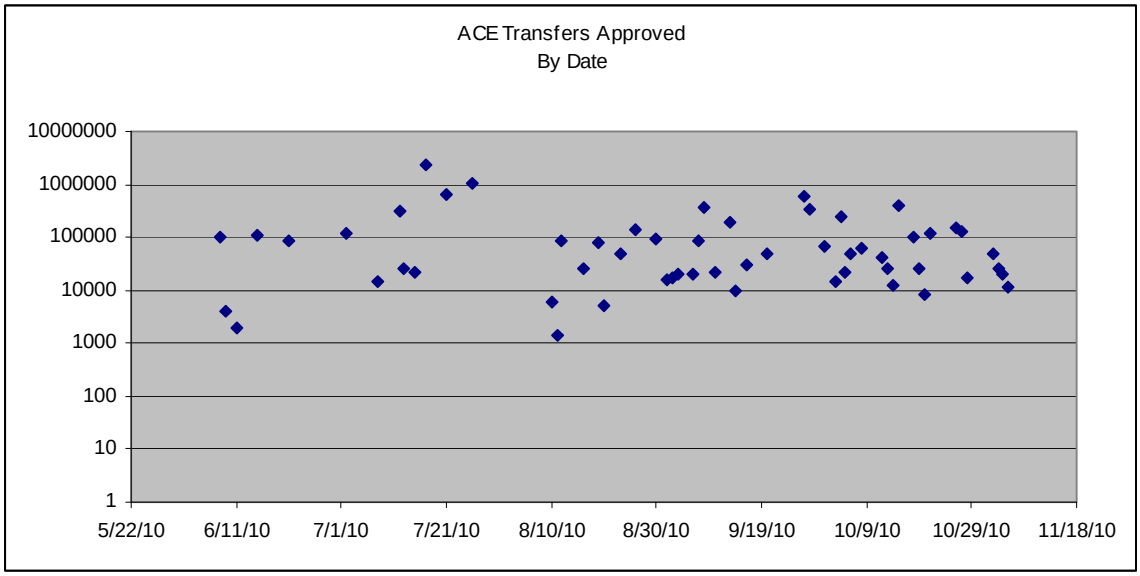
The first transfer was approved in the first week of June, 2010, five weeks into the fishing year. Through November 5, 2010, 136 ACE transfers were completed with a total of 8.6 million pounds (3,932 mt) exchanged. After a slow start, transfers have been approved at a steady rate

since early August (Figure 32) and so far there is no obvious trend in the volume of transfer activity. The average weight in a transfer was 63,745 lbs. This value is skewed by a few large transfers and the median amount in an individual transfer was 18,130 lbs. Eighty-six of the transfers involved a single stock while the remainder included from 2 to 16 stocks (note it is not clear if single stock transfers were part of an agreement that was completed on a different date). Pollock accounts for the largest weight transferred between sectors. GB cod (west), GOM haddock and GOM winter flounder are the three stocks with the largest percentage of the sector sub-ACL transferred, at between 12.7 and 18.6 percent. All of the stocks have been acquired by at least 8 different sectors.

**Table 75 – ACE transfers by stock, May 1, 2010 – November 5, 2010**

| Stock | Pounds (live weight) | Metric Tons | Percent of Sector ACE | Number of Sectors Acquiring ACE | Average Weight Acquired (lbs.) |
|---|---|---|---|---|---|
| CC/GOM Yellowtail Flounder | 161,645 | 73 | 9.1% | 9 | 17,961 |
| GB Cod East | 41,650 | 19 | 5.8% | 9 | 4,628 |
| GB Cod West | 1,221,430 | 554 | 18.6% | 12 | 101,786 |
| GB Haddock East | 762,107 | 346 | 2.9% | 10 | 76,211 |
| GB Haddock West | 1,324,150 | 601 | 2.1% | 11 | 120,377 |
| GB Winter Flounder | 178,548 | 81 | 4.4% | 9 | 19,839 |
| GB Yellowtail Flounder | 163,709 | 74 | 9.2% | 8 | 20,464 |
| GOM Cod | 1,113,694 | 505 | 11.7% | 10 | 111,369 |
| GOM Haddock | 225,845 | 102 | 12.8% | 9 | 25,094 |
| GOM Winter Flounder | 37,416 | 17 | 12.7% | 9 | 4,157 |
| Plaice | 324,859 | 147 | 5.4% | 9 | 36,095 |
| Pollock | 2,228,726 | 1,011 | 6.2% | 11 | 202,611 |
| Redfish | 235,275 | 107 | 1.6% | 10 | 23,528 |
| SNE/MA Yellowtail Flounder | 16,391 | 7 | 3.2% | 10 | 1,639 |
| White Hake | 485,129 | 220 | 8.8% | 11 | 44,103 |
| Witch Flounder | 148,802 | 67 | 8.2% | 9 | 16,534 |
| **Total** | 8,669,376 | 3,932 | 9.1% | 9 | 17,961 |

**Figure 32 – Weight of ACE transfers approved by date, FY 2010 through November 5, 2010. Note logarithmic scale for the weight transferred.**




Fifteen sectors transferred ACE to another sector, but only fourteen sectors received ACE. The sectors that transferred ACE to another sector differ from the sectors that received ACE – three sectors received ACE but have not transferred any to other sectors. With one exception, all the sectors that transferred ACE completed more than one transfer. With that same exception, all of the sectors transferring ACE have transferred ACE to more than one other sector.

The average weight of ACE a sector has transferred to other sectors is 577,958 lbs. while the median is just over 96,000 lbs. The range extends from 0 (no transfers) to nearly 3 million pounds. The average weight of ACE received by a sector is 619,241 lbs. while the median is 216,434 lbs.

While it took some time for the transfer market to develop, activity has been steady since mid-August. Data on the compensation exchanged between sectors is limited and is insufficient to estimate the costs of the transfer program. It is clear from an examination of the exchanges that many transfers involve the trade of one stock for another – for example, a trade of GOM cod in exchange for GB cod. Close to half the exchanges can be easily identified as a direct exchange between two sectors because of their timing and the species and quantities exchanged. Further evidence that this is taking place is given by the fact that seven of the sectors that have transferred ACE to other sectors have kept their total ACE allocation within five percent of their original total allocation. Such exchanges indicate that the transfer market does not necessarily impose costs on all transfers. These exchanges allow a sector to trade something that may be of limited value (for example because it cannot be harvested by small vessels, or is in an area the sector does not want to fish, etc.) to another sector for something that is of greater value to the sector. Four sectors that have transferred ACE have reduced their total ACE weight by between 15 and 20 percent to date. Three sectors have increased their allocation by between 9 and 16 percent to date.

### 6.5.4 Commercial Discards

Amendment 13 (NEFMC 2003) and Amendment 16 (NEFMC 2009) summarized discards in the multispecies fishery by compiling discard estimates from assessment documents. One of the possible impacts of increased sector participation noted in Amendment 16 was a reduction in discards by vessels fishing in sectors. Conversely, FW 44 (NEFMC 2010) noted that GOM cod and pollock trip limits adopted in that action might increase discards by common pool vessels.

While the .exact nature of changes in discards will not be known until assessments are updated, NMFS does develop in-season estimates of discards for both common pool and sector fishing vessels. These in–season estimates may differ from the final values determined in future assessments since the in-season estimates are developed using only those data that are currently available. They also do not take into account the possible presence of an observer effect, where behavior on observed trips may differ from that on unobserved trips and bias the estimates. Nevertheless, they do provide an early indication of the nature of changes in discards.

Table 76 summarizes discard estimates for common-pool vessels. As a result lf various in-season actions, most stocks have trip limits that apply to common pool fishing vessels. There is a wide range in the rate of discarded to kept fish for the various stocks. For GOM cod, GB cod, GOM haddock, GB haddock, GOM winter flounder, witch flounder, white hake, and pollock have ratios of less than 20 percent. While somewhat higher than the ratios in earlier years, they are in the same range. The ratios for GB winter flounder, CC/GOM yellowtail flounder, and GB yellowtail flounder are much higher than in the past. Discards account for 15 percent of the common pool catch. Even so, the total discards from common pool vessels are about 92 mt, or less than 0.7 percent of the total commercial catch.

Table 77 summarizes discard estimates for sector vessels. Ten of the stocks have ratios less than 10 percent and with two exceptions (CC/GOM yellowtail flounder and SNE/MA yellowtail flounder) the others are 20 percent or less. In all but three instances the sector discards to kept ratios are lower than for common pool vessels. When compared to recent observed ratios based on GARM III estimates, the current sector ratio is much lower for GOM cod, GB haddock, GB cod, GB winter flounder, and GOM winter flounder. The ratios, however, are similar to previous ratios for plaice and CC/GOM yellowtail flounder. Overall, sector discards account for about 4 percent of removals by sector vessels and just fewer than 4 percent of total removals by the commercial fishery.

Table 78 summarizes in-season discard estimates for the commercial fishery.

Overall, the current in-season estimates suggest discards in the commercial fishery have declined with the expansion of the sector program under Amendment 16. As noted earlier, this preliminary conclusion may be modified in the future when final estimates are developed. In-season estimates do not consider any possible observer effects. With respect to the common pool vessels, the discard rates support conclusions in past actions that trip-limit reductions tend to increase discard rates.

**Table 76 – In-season discard estimates for common-pool vessels using data compiled through October 9, 2010 (Source: NMFS NERO)**

| Common Pool | | | | |
|---|---|---|---|---|
| STOCK | Discard (mt) | Kept (mt) | Catch (mt) | D/K % |
| GB Cod East | 0 | 0 | 0 | NA |
| GB Cod | 1.1 | 10.99 | 12.09 | 10.01 |
| GOM Cod | 30.15 | 183.71 | 213.86 | 16.41 |
| Plaice | 9.16 | 20.84 | 30 | 43.95 |
| GB Winter Flounder | 2.86 | 5.89 | 8.75 | 48.56 |
| GOM Winter Flounder | 2.65 | 18.72 | 21.37 | 14.16 |
| Witch Flounder | 3.62 | 25.37 | 28.99 | 14.27 |
| CC/GOM Yellowtail Flounder | 18.37 | 13.42 | 31.78 | 136.89 |
| GB Yellowtail Flounder | 10.59 | 7.77 | 18.36 | 136.29 |
| SNE/MA Yellowtail Flounder | 0 | 1.94 | 1.94 | 0.00 |
| GB Haddock East | 0 | 0 | 0 | NA |
| GB Haddock | 0.38 | 91.5 | 91.88 | 0.42 |
| GOM Haddock | 0.17 | 5.19 | 5.36 | 3.28 |
| White Hake | 4.36 | 35.66 | 40.02 | 12.23 |
| Pollock | 7.58 | 79.04 | 86.62 | 9.59 |
| Redfish | 1.3 | 4.55 | 5.85 | 28.57 |

**Table 77 - In-season discard estimates for sector vessels using data compiled through October 9, 2010**

| Sectors | | | | |
|---|---|---|---|---|
| STOCK | Discard (mt) | Kept (mt) | Catch (mt) | D/K % |
| GB Cod East | 7.24 | 83.55 | 90.79 | 8.67 |
| GB Cod | 92.74 | 903.23 | 995.97 | 10.27 |
| GOM Cod | 32.1 | 1690.33 | 1722.45 | 1.90 |
| Plaice | 96.12 | 539.28 | 635.38 | 17.82 |
| GB Winter Flounder | 13.22 | 883.55 | 896.78 | 1.50 |
| GOM Winter Flounder | 0.6 | 21.58 | 22.19 | 2.78 |
| Witch Flounder | 24.94 | 232.03 | 256.98 | 10.75 |
| CC/GOM Yellowtail Flounder | 16.19 | 79.27 | 95.44 | 20.42 |
| GB Yellowtail Flounder | 37.06 | 326.72 | 363.78 | 11.34 |
| SNE/MA Yellowtail Flounder | 2.35 | 10.97 | 13.32 | 21.42 |
| GB Haddock East | 5.93 | 351.83 | 357.75 | 1.69 |
| GB Haddock | 28.55 | 3580.49 | 3609.06 | 0.80 |
| GOM Haddock | 1.36 | 103.5 | 104.86 | 1.31 |
| White Hake | 22.57 | 623.53 | 646.1 | 3.62 |
| Pollock | 38.67 | 1730.53 | 1769.19 | 2.23 |
| Redfish | 69.48 | 857.02 | 926.52 | 8.11 |

**Table 78 – In-season discard estimates for all commercial vessels using data compiled through October 9, 2010**

| Commercial | | | | |
|---|---|---|---|---|
| STOCK | Discard (mt) | Kept (mt) | Catch (mt) | D/K % |
| GB Cod East | 7.24 | 83.55 | 90.79 | 8.67 |
| GB Cod | 93.84 | 914.22 | 1008.06 | 10.26 |
| GOM Cod | 62.25 | 1874.04 | 1936.31 | 3.32 |
| Plaice | 105.28 | 560.12 | 665.38 | 18.80 |
| GB Winter Flounder | 16.08 | 889.44 | 905.53 | 1.81 |
| GOM Winter Flounder | 3.25 | 40.3 | 43.56 | 8.06 |
| Witch Flounder | 28.56 | 257.4 | 285.97 | 11.10 |
| CC/GOM Yellowtail Flounder | 34.56 | 92.69 | 127.22 | 37.29 |
| GB Yellowtail Flounder | 47.65 | 334.49 | 382.14 | 14.25 |
| SNE/MA Yellowtail Flounder | 2.35 | 12.91 | 15.26 | 18.20 |
| GB Haddock East | 5.93 | 351.83 | 357.75 | 1.69 |
| GB Haddock | 28.93 | 3671.99 | 3700.94 | 0.79 |
| GOM Haddock | 1.53 | 108.69 | 110.22 | 1.41 |
| White Hake | 26.93 | 659.19 | 686.12 | 4.09 |
| Pollock | 46.25 | 1809.57 | 1855.81 | 2.56 |
| Redfish | 70.78 | 861.57 | 932.37 | 8.22 |

### 6.5.5 Economic Status of Recreational Harvesting Sector

*To be completed*

### 6.5.6 Economic Status of General Category Scallop Fishery

Table 80 through Table 82 describes general category landings by gear type. These tables are generated by VTR data and since not all VTR records include gear information, the number of vessels in these tables will differ from other tables that summarize general category vessels and landings from dealer data. Primary gear is defined as the gear used to land more than 50% of scallop pounds. Most general category effort is and has been from vessels using scallop dredge and other trawl gear (Table 81). The number of vessels using scallop trawl gear increased through 2006 but has declined in recent years. In terms of landings, most scallop landings under general category are with dredge gear (Table 81), with significant amounts also landed by scallop trawls and other trawls. Table 82 shows the percent of general category landings by primary gear and year. The percentages of scallop landings with other trawl gear in 2008 and 2009 were the highest they have been since 2001, but still significantly less than dredge.

**Table 79 - Active scallop vessels by permit category by fish year (Dealer data, nominal values)**

| Permit Plan | Data | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| General Category | Number of vessels | 432 | 619 | 661 | 495 | 459 |
| | Scallop pounds per vessel | 6,553 | 11,493 | 10,439 | 10,026 | 10,621 |
| | Average scallop revenue per vessel | 34,043 | 88,071 | 69,181 | 65,190 | 72,077 |
| | Average total revenue per vessel (?) | 249,167 | 260,942 | 250,752 | | 135,378 |
| | Total scallop landings | 2,831,030 | 7,113,906 | 6,900,329 | 4,963,101 | 4,545,828 |
| | Total scallop revenue | 14,706,711 | 54,515,676 | 45,728,570 | 32,268,982 | 30,849,009 |
| | Ex-vessel price ($) | 5.6 | 7.7 | 6.7 | 6.5 | 6.8 |

**Table 80 - Number of general category vessels by primary gear and fishing year**

| FISHING YEAR | DREDGE, OTHER | DREDGE, SCALLOP | MISC | TRAWL, OTHER | TRAWL, SCALLOP |
|---|---|---|---|---|---|
| 1994 | * | 33 | 4 | 42 | * |
| 1995 | 4 | 91 | 5 | 48 | 4 |
| 1996 | 7 | 101 | 13 | 49 | * |
| 1997 | 6 | 118 | 9 | 55 | UNK |
| 1998 | 10 | 100 | 8 | 52 | * |
| 1999 | 10 | 87 | 3 | 61 | 5 |
| 2000 | 7 | 78 | 9 | 91 | 3 |
| 2001 | 4 | 122 | 7 | 118 | 6 |
| 2002 | 3 | 147 | 3 | 104 | 9 |
| 2003 | 6 | 155 | 2 | 116 | 17 |
| 2004 | 8 | 217 | 10 | 183 | 35 |
| 2005 | 26 | 280 | 3 | 183 | 60 |
| 2006 | 29 | 366 | 9 | 159 | 65 |
| 2007 | 26 | 280 | 4 | 125 | 30 |
| 2008 | 9 | 129 | 5 | 66 | 21 |
| 2009 | 8 | 117 | * | 53 | 22 |

** indicates 3 or less vessels*
*UNK - value unknown*

**Table 81 - General category scallop landings by primary gear (pounds)**

| FISHING YEAR | DREDGE, OTHER | DREDGE, SCALLOP | MISC | TRAWL, OTHER | TRAWL, SCALLOP |
|---|---|---|---|---|---|
| 1994 | 111 | 144,139 | 260 | 9,564 | 2,601 |
| 1995 | 4,812 | 501,910 | 1,146 | 43,585 | 11,797 |
| 1996 | 1,352 | 578,884 | 3,314 | 19,460 | 1,644 |
| 1997 | 3,253 | 682,270 | 3,465 | 30,227 | * |
| 1998 | 6,049 | 334,930 | 2,443 | 19,677 | 3,750 |
| 1999 | 18,322 | 236,482 | 599 | 17,537 | 3,970 |
| 2000 | 6,446 | 303,168 | 1,411 | 173,827 | 8,179 |
| 2001 | 91,939 | 1,254,153 | 6,518 | 404,709 | 28,276 |
| 2002 | 21,888 | 1,266,144 | 919 | 74,686 | 41,977 |
| 2003 | 22,614 | 1,590,575 | 484 | 171,511 | 196,376 |
| 2004 | 36,260 | 2,624,753 | 2,259 | 487,620 | 373,980 |
| 2005 | 198,736 | 4,934,735 | 1,441 | 744,027 | 892,154 |
| 2006 | 198,400 | 5,607,142 | 8,386 | 418,708 | 599,508 |
| 2007 | 142,044 | 4,517,800 | 724 | 226,131 | 395,683 |
| 2008 | 87,186 | 2,593,870 | 1,502 | 528,252 | 287,362 |
| 2009 | 63,368 | 1,940,047 | 400 | 574,555 | 211,598 |

** value unknown*

**Table 82 - Percentage of general category scallop landings by primary gear**

| FISHING YEAR | DREDGE, OTHER | DREDGE, SCALLOP | MISC | TRAWL, OTHER | TRAWL, SCALLOP |
|---|---|---|---|---|---|
| 1994 | 0.07% | 92.00% | 0.17% | 6.10% | 1.66% |
| 1995 | 0.85% | 89.11% | 0.20% | 7.74% | 2.09% |
| 1996 | 0.22% | 95.74% | 0.55% | 3.22% | 0.27% |
| 1997 | 0.45% | 94.86% | 0.48% | 4.20% | * |
| 1998 | 1.65% | 91.30% | 0.67% | 5.36% | 1.02% |
| 1999 | 6.62% | 85.40% | 0.22% | 6.33% | 1.43% |
| 2000 | 1.31% | 61.49% | 0.29% | 35.26% | 1.66% |
| 2001 | 5.15% | 70.24% | 0.37% | 22.67% | 1.58% |
| 2002 | 1.56% | 90.08% | 0.07% | 5.31% | 2.99% |
| 2003 | 1.14% | 80.27% | 0.02% | 8.66% | 9.91% |
| 2004 | 1.03% | 74.46% | 0.06% | 13.83% | 10.61% |
| 2005 | 2.94% | 72.88% | 0.02% | 10.99% | 13.18% |
| 2006 | 2.90% | 82.07% | 0.12% | 6.13% | 8.77% |
| 2007 | 2.69% | 85.53% | 0.01% | 4.28% | 7.49% |
| 2008 | 2.49% | 74.15% | 0.04% | 15.10% | 8.21% |
| 2009 | 2.27% | 69.54% | 0.01% | 20.59% | 7.58% |

** value unknown*

Since 2001, there has been considerable growth in fishing effort and landings by vessels with general category permits, primarily as a result of resource recovery and higher scallop prices (Table 83). This additional effort was likely a contributing factor to why the scallop FMP has been exceeding the fishing mortality targets.

**Table 83 - General category permit before and after Amendment 11 implementation**

| FY | Number of active general category vessels | General category scallop landings (million lb.) | % share of general category landings in total scallop landings |
|---|---|---|---|
| 1994 | 202 | 0.17 | 1.0% |
| 1995 | 199 | 0.13 | 0.8% |
| 1996 | 244 | 0.24 | 1.4% |
| 1997 | 261 | 0.38 | 2.7% |
| 1998 | 227 | 0.18 | 1.5% |
| 1999 | 202 | 0.16 | 0.7% |
| 2000 | 212 | 0.37 | 1.1% |
| 2001 | 290 | 1.58 | 3.3% |
| 2002 | 315 | 1.11 | 2.2% |
| 2003 | 348 | 1.95 | 3.4% |
| 2004 | 433 | 3.16 | 4.9% |
| 2005 | 611 | 7.40 | 13.5% |
| 2006 | 661 | 6.90 | 12.0% |
| 2007 | 495 | 4.96 | 8.8% |

# 7.0 ENVIRONMENTAL CONSEQUENCES – ANALYSIS OF IMPACTS

## *7.1 Biological Impacts*

Biological impacts discussed below focus on expected changes in fishing mortality. Impacts on habitat and endangered or threatened species are discussed in separate sections. Impacts of the Proposed Action are discussed in relation to impacts on regulated groundfish, other species, and bycatch (as defined by the M-S Act).

### 7.1.1 Updates to Status Determination Criteria, Formal Rebuilding Programs, and Annual Catch Limits

#### 7.1.1.1 Revised Status Determination Criteria

**Option 1: No Action**

Under this option the status determination criteria (SDC) would not be changed from those developed by the Reference Point Working Group (NEFSC 2002) and implemented by Amendment 13; they were updated by GARM III (NEFSC 2008) and modified in Amendment 16. These SDCs were developed using an index-based assessment model. The $F_{MSY}$ proxy is a relative fishing mortality estimate that divides the catch by the fall trawl survey index; a centered three-year moving average was used to smooth survey variability.

Information developed by SAW 50 (NEFSC 2010) indicates that if these status determination criteria were used, the stock would be determined to be overfished and overfishing would still be occurring. The formal rebuilding program first adopted in Amendment 16 would need to be continued. Catches would be held at a low level to rebuild the stock. As a result, fishing mortality would be reduced and stock status would improve.

This option would not use the best available science to determine stock status and would be inconsistent with the requirements of the M-S Act, specifically National Standard 2.

**Option 2: Revised Status Determination Criteria for Pollock**

This option adopts the SDC recommended by SAW 50 (NEFSC 2010). Using these criteria, the stock is not overfished and overfishing is not occurring. The stock is estimated to be above $SSB_{MSY}$ and as a result a formal rebuilding program is no longer required. Catches can increase above recent levels and well above the catches proposed in FW 44 using the No Action SDC and a formal rebuilding program. The impacts of increased catches will be described in a subsequent section. When compared to No Action, this option results in a different stock status as a result of using the best available scientific information.

By adopting the revised criteria, management of this stock will be based on a more complete assessment than the index-based assessment used previously. While the most noticeable change is that catches will increase in the short-term, over the long-term the use of an analytic assessment

should lead to a better understanding of the resource and a more accurate determination of sustainable catch levels.

This option uses the best available science and as a result is consistent with the M-S Act and National Standard 2.

#### 7.1.1.2 Revised GB Yellowtail Flounder Rebuilding Mortality Targets

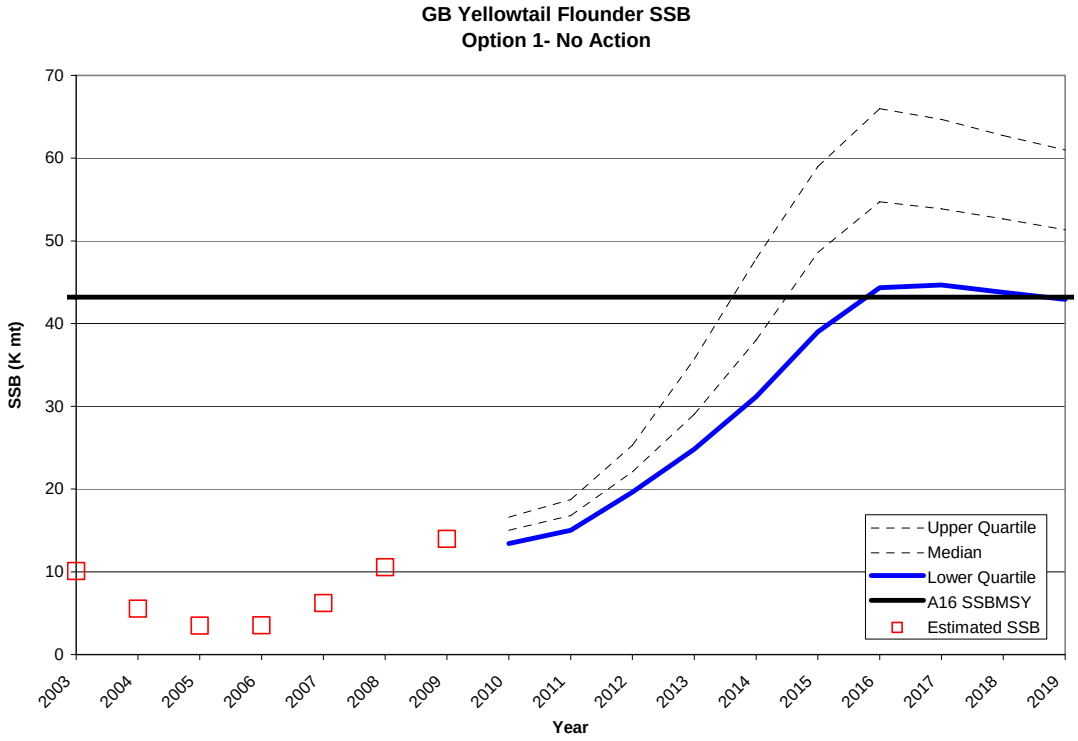
For stocks such as GB yellowtail flounder with an age-based analytic assessment, the impacts on stock size of different rebuilding strategies can be estimated using short-term projections. These projections estimate median stock size expected if the target fishing mortality rate is achieved, and also indicate the uncertainty of the estimate by providing a distribution of the results by allowing some inputs to vary. The primary inputs varied in the projection to characterize the uncertainty are initial stock numbers at age and recruitment. The projection results do not incorporate other sources of uncertainty. While these projections are based on the scientific advice of the GARM III and TRAC panels, the SSC, and the Groundfish Plan Development Team, projections are subject to uncertainty and future stock size may differ from the trajectories illustrated here.

One nuance of the projections is worth noting. Groundfish stocks are assessed on a calendar year basis, yet the FMP's specifications are set for the fishing year (May 1 – April 30). This difference is not considered in the following analyses because a method has not been developed to reconcile this difference.

**Option 1: No Action**

Under this option the rebuilding strategy for GB yellowtail flounder would continue to target rebuilding by 2014 with a 75 percent probability of success. This option would rebuild this stock more quickly than the other options under consideration. The 2010 assessment of this stock (TRAC 2010) indicated that this goal cannot be achieved even in the absence of all fishing mortality. Nevertheless, if this option is selected and a target fishing mortality of F=0 is adopted for the stock in order to rebuild as rapidly as possible, the stock would be expected to grow more rapidly than the other options. The stock would exceed the biomass target of 43,200 mt in 2015 with a 64 percent probability and in 2016 there would be a 77 percent probability of exceeding the target. Figure 33 indicates the stock size trajectory projected if all fishing mortality is eliminated. After the stock is rebuilt this projection assumes fishing at the ABC control rule (75% of $F_{MSY}$).

**Figure 33 – Option 1- No Action GB yellowtail flounder rebuilding trajectory**




## Option 2 – Revised Rebuilding Target for GB Yellowtail Flounder

Since recent assessments indicate the stock will not rebuild by 2014 in the absence of all fishing mortality, four alternative rebuilding strategies are being considered for this measure. All four options target a rebuilding at a slower pace than under the No Action alternative. Stock size would be smaller under all of the options when compared to No Action until the ending date of rebuilding. The four options under consideration are:

Sub-option A: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 50 percent probability of success
Sub-Option B: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 60 percent probability of success
Sub-Option C: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 75 percent probability of success
Sub-Option D: Use a fishing mortality target that is calculated to rebuild the stock by 2019 with a 60 percent probability of success

The first three sub-options extend the rebuilding period to 2016. Since the rebuilding program was initiated in 2006, this is the final year of a ten-year rebuilding program that meets M-S Act requirements. These three sub-options consider different probabilities of success, which can be interpreted as different levels of risk that the rebuilding target will not be achieved. While these sub-options rebuild more slowly than the No Action alternative, rebuilding will still occur by 2016 in accordance with M-S Act requirements.

Sub-option D extends the rebuilding period until 2019, and targets a probability of success of 60 percent. It will result in lower stock sizes than the No Action or other alternatives until the target biomass is reached in 2019. On the surface, this period does not appear to meet M-S Act rebuilding requirements that rebuilding not extend past ten years except in certain circumstances. There are three identified exceptions in the act: "…except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise." This stock is not managed by a recognized international agreement so the only possible exceptions relate to biology of the stock of fish or other environmental conditions. National Standard Guidelines interpret the Act's language on biology of the stock to refer to its ability to rebuild in the absence of fishing mortality. If this minimum period is less than ten years, then ten years is the maximum rebuilding period; if more than ten years, the period is extended by one generation time for that stock or stock complex. Analyses performed for this stock in 2005 indicated that it could rebuild in ten years, setting a maximum period that ends in 2016. With respect to whether environmental conditions justify extending beyond ten years, no guidance is provided for how environmental conditions should be evaluated.

The success of the rebuilding strategies is contingent not only on the control of fishing mortality but on other factors beyond the control of management. The projections use an assumption on future recruitment - that is, the number of Age 1 fish that enter the population in each year. The projections sample from the observed distribution of recruitment from 1963 – 2009, with a two-stage approach: when stock size is below 5,000 mt, samples are only taken from the recruitment at lower stock sizes. This recruitment stream averages about 24.6 million fish. This is the same recruitment stream used to develop the biomass target. Since 1983, the observed recruitment averaged only 14.1 million fish. If future recruitment is at this lower average, the stock will not rebuild as indicated in these projections and has only a 5 percent probability of rebuilding by 2020 (TRAC 2010). But if this recruitment stream continues, the recruitment assumption used to estimate the biomass target can be questioned and the biomass target should be re-estimated using a different recruitment assumption (Cadrin, pers. comm., 2010).

The 2010 assessment (TRAC, 2010) also addressed the impacts on rebuilding success of the retrospective pattern observed in the assessment. The retrospective pattern introduces additional uncertainty over rebuilding success. These projections do not account for this pattern. The Council's SSC reviewed the assessment and stated that "The inconsistency in estimates of recent stock size primarily results from over-estimating the abundance of the 2005 yearclass." They did not adjust catch advice based on rebuilding scenarios for this pattern.

Estimates for the rebuilding fishing mortality needed to meet the strategies based on current projections are provided in Table 84. These values may change in future years if stock conditions differ from the projection results. Spawning stock biomass trajectories for these rebuilding strategies are shown in the following figures.

**Table 84 – Target fishing mortality rates (current estimates) for GB yellowtail flounder rebuilding strategies**

| Option Name | Ending Year/Probability | Rebuilding Mortality Estimate |
|---|---|---|
| No Action | 2014/75% | 0 |
| Option 2A | 2016/50% | 0.138 |
| Option 2B | 2016/60% | 0.101 |
| Option 2C | 2016/75% | 0.039 |
| Option 2D | 2019/60% | 0.182 |

**Figure 34 – Option 2A – GB yellowtail flounder rebuilding strategy (2016/50%)**

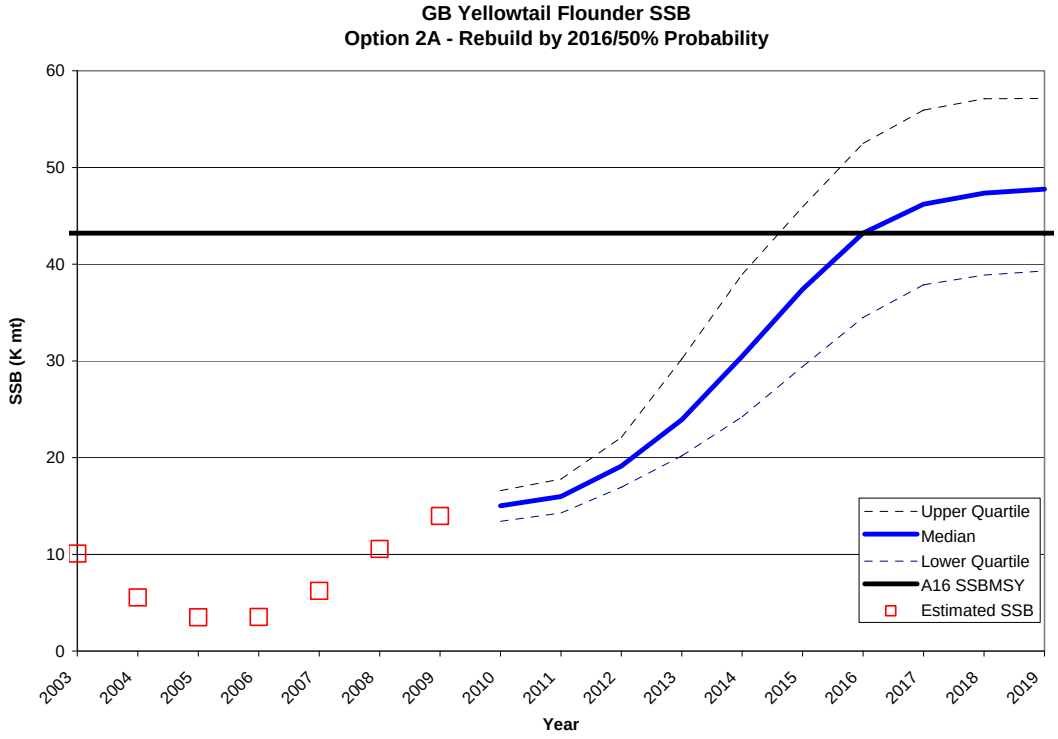


**Figure 35 – Option 2B – GB yellowtail flounder rebuilding strategy (2016/60%)**

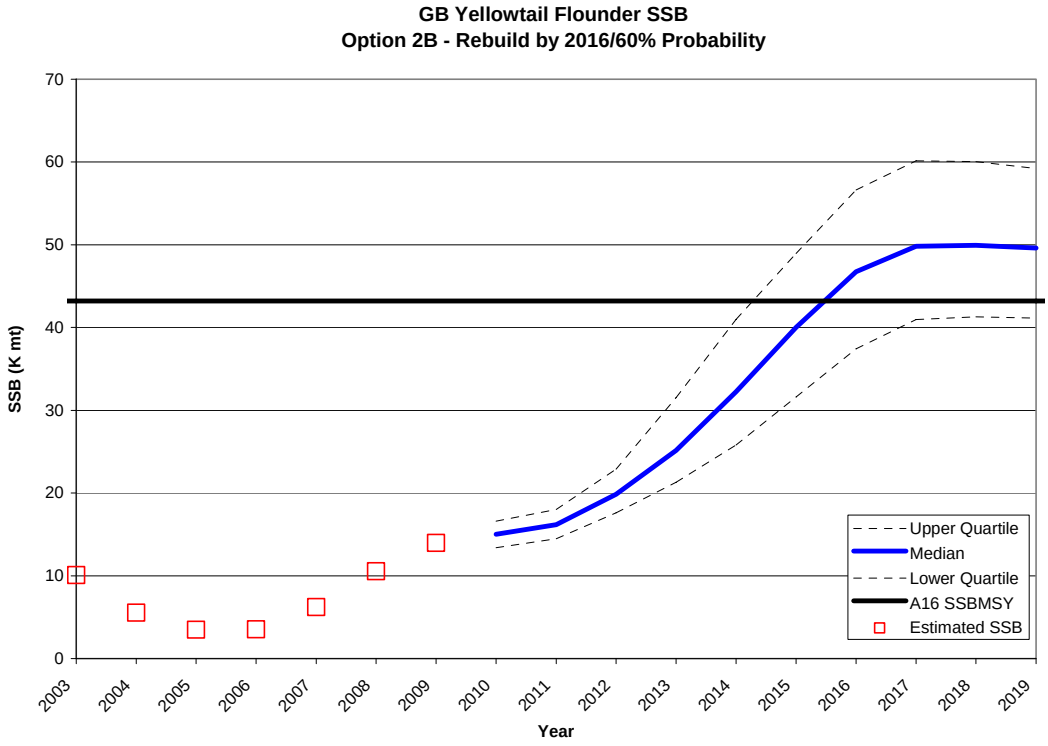



**Figure 36 – Option 2C – GB yellowtail flounder rebuilding strategy (2016/75%)**

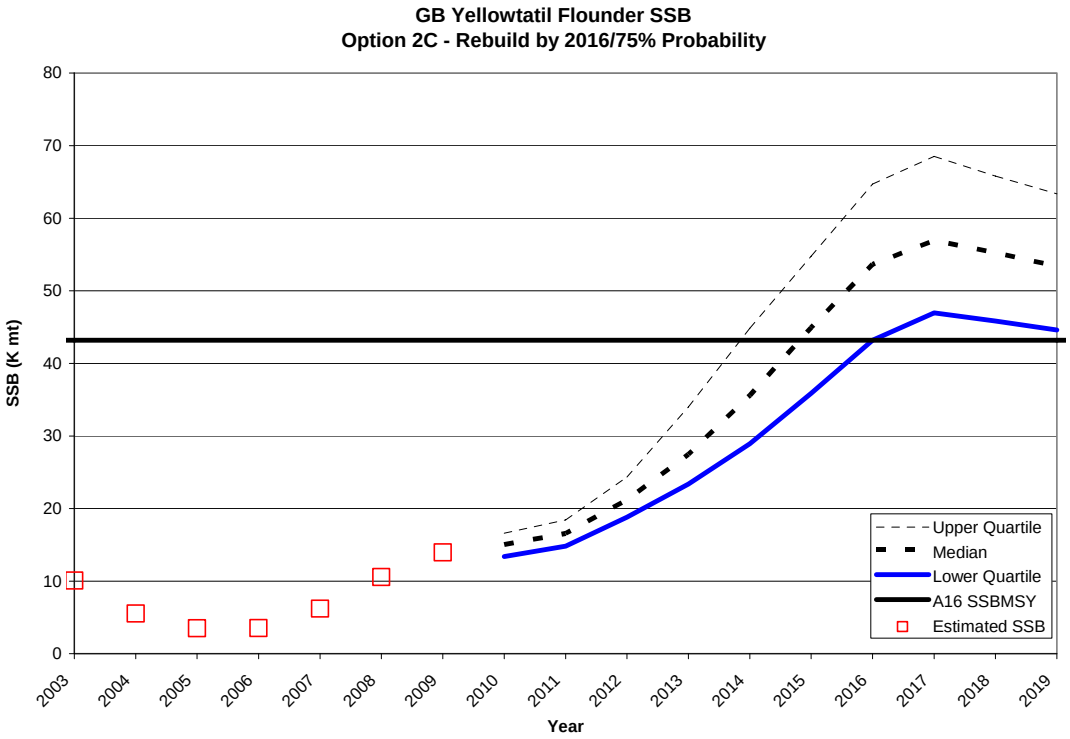
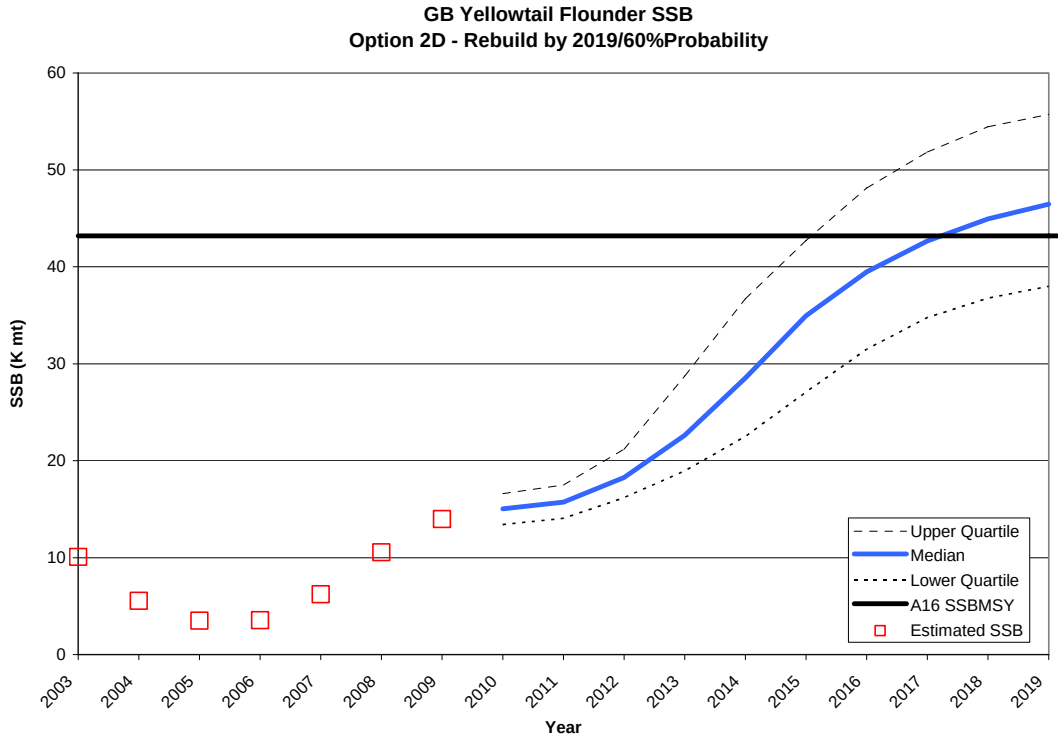


**Figure 37 – Option 2D – GB yellowtail flounder rebuilding strategy (2019/60%)**




### 7.1.1.3 Annual Catch Limit Specifications

**Option 1: No Action**

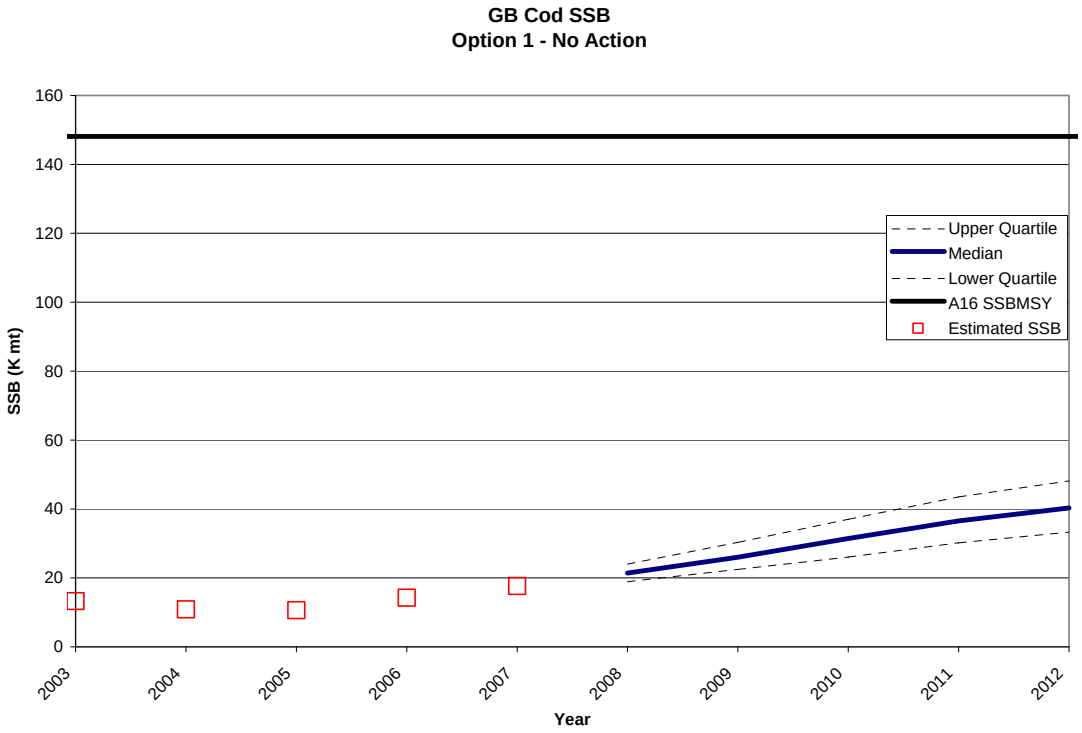
This No Action option does not modify the OFLs/ABCs/ACLs for GB cod, GB haddock, GB yellowtail flounder, white hake, and pollock that were adopted by FW 44 (NEFMC 2010). All of the elements of the ACLs would remain the same, such as the allocations of GB and SNE/MA yellowtail flounder to the scallop fishery that were adopted in that same action.

FW 44 defined the Overfishing Level (OFL), Acceptable Biological Catch (ABC), and Annual Catch Limits (ACLs) for the multispecies fishery. The OFLs were based on estimates of stock size and $F_{MSY.}$ The ABCs were reduced below the OFL and are based on a control rule for each stock. These control rules were identified in Amendment 16. In most cases, the ABC was based on a fishing mortality of either 75 percent of $F_{MSY}$ or an $F_{rebuild}$, whichever is lower. The ABC is thus below the OFL and if catches are kept at or below the ABC, overfishing is unlikely to occur. The ACL is set lower than the ABC to account for management uncertainty. The ABCs – and thus the ACLs - that were specified for FY 2010 through FY 2012 are based on the fishing mortality targets adopted by Amendment 16. These targets were designed to end overfishing and to rebuild groundfish stocks consistent with the requirements of the M-S Act and the Council's rebuilding goals. The ABCs were set by the Science and Statistical Committee (SSC). In all cases the ACL is lower than the ABC.

*GB cod*

The No Action alternative does not change the OFLS/ABCs/ACLs for GB cod, including the distribution of the catch to various components of the fishery. The expected fishing mortality rates and stock size changes would be as described in FW 44 as modified by information on the 2009 catch. Fishing mortality in 2001 and 2012 would be expected to be about 0.18, well below $F_{MSY}$, and there is about a 15 percent chance of overfishing occurring. This is essentially unchanged from the FW 44 analyses.

**Figure 38 – No Action GB cod SSB trajectory**




*GB haddock*

The No Action alternative does not change the OFLS/ABCs/ACLs for GB haddock, including the distribution of the catch to various components of the fishery. The expected fishing mortality rates and stock size changes would be as described in FW 44 as modified by information on the 2009 catch. Fishing mortality in 2001 and 2012 would be expected to be about XX, well below $F_{MSY}$, and there is about a XX percent chance of overfishing occurring.

*GB yellowtail flounder*

In the case of GB yellowtail flounder, the OFLs/ABCs/ACL were established based on the TRAC assessment completed in 2009 (TRAC 2009). This assessment used two assessment formulations that were believed to bracket actual stock status. Both the SSC and the TMGC considered these two assessments formulations for determining the 2010 specifications, but did not provide advice for 2011 and 2012. As a result, FW 44 adopted the values that came from the formulation that returned the smallest values. The OFL for 2011 was 6,083 mt and for 2012 was 7,094 mt. The total ABC (US and Canada catch) for 2011 was 1,689 mt and for 2012 was 1,916 mt. Retaining the No Action/FW 44 specifications for GB yellowtail flounder does not match well with any of

the rebuilding strategies that are being considered but the values are bracketed by the catch from rebuilding sub-options 2A and 2B.

TRAC 2010 used only one model formulation and estimated stock size at lower values than TRAC 2009. As a result, there is a noticeable difference in the new OFL levels of 2011 and 2012 when compared to the No Action/FW 44 values. If the FW 44/No Action OFLs are retained, they exceed the OFLs based on the current assessment. This has little direct impact on the stock as the target catch levels (ABC and ACL are set well below the OFL. Management actions are not triggered by catches that exceed the OFL; accountability measures (AMs) are based on catches approaching the ACL. Nevertheless, if catches were compared to the No Action OFLs, it would give a misleading impression of management success in preventing overfishing.

**Table 85 – Comparison of OFLs for GB yellowtail flounder for 2011 and 2012 (metric tons)**

| OFL Source | FY 2011 | FY 2012 |
|---|---|---|
| FW 44/ (FW 45 No Action on OFLs) | 6,083 | 7,094 |
| FW 45 | 3,495 | 4,208 |

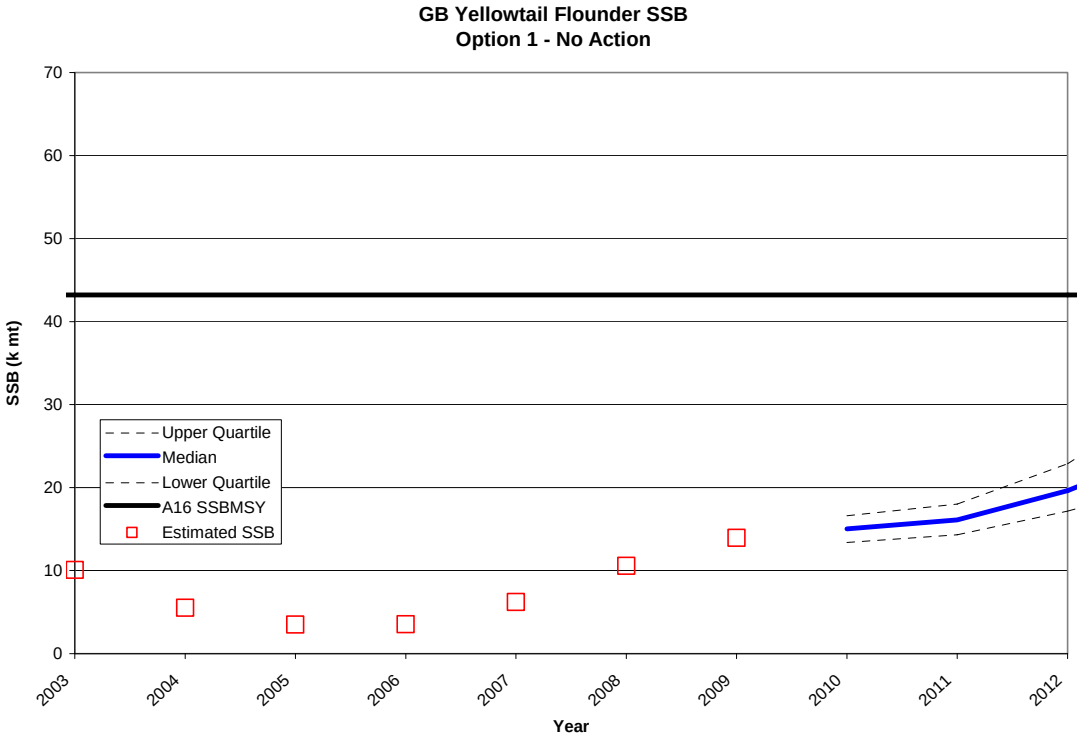
Based on the current assessment and projections, the FW 44 ABCs would be expected to result in a fishing mortality of 0.12, well below the $F_{MSY}$ value of 0.25. There is essentially no chance that overfishing will occur; it is also unlikely the stock will rebuild by 2014 at this catch. This evaluation is based on the projection and it should be remembered that projections do not capture all sources of uncertainty. TRAC 2010 reported the presence of a retrospective pattern in this assessment. The SSC concluded that "Although recent retrospective inconsistency is substantial, it may not continue if it was indeed associated with the 2005 year class" (Cadrin, pers. comm.) and chose not to modify catch advice from the projections. Nevertheless, if the projection is adjusted for that pattern, the fishing mortality resulting from the FW 44 ABCs would be expected to be about 0.20 and there would be about a 12 percent probability of overfishing in 2011 and 2012.

If the ABCs from FW 44 are compared to the candidate ABCs for the different rebuilding strategies considered in this action, they are lower than the Sub-Option 2A and 2D values but higher than all other alternatives (Table 86). As a result, fishing mortality under this option would be less than that expected from Sub-Option 2A and Sub-Option 2D but higher than from other options, and rebuilding would be slower than all options except Sub-Options 2A and 2D. The rebuilding trajectory for the No Action alternative is shown in Figure 39; it differs only slightly from the trajectory that results from the ACLs associated with Sub-Options 2A and 2B (see Figure 34 and Figure 35).

**Table 86 – Comparison of ABCs for GB yellowtail flounder for 2011 and 2012 (metric tons)**

| ABC Source | FY 2011 | FY 2012 |
|---|---|---|
| FW 44/ (FW 45 No Action on ACLs) | 1,689 | 1,916 |
| FW 45: GB YTF rebuilding strategy No Action | 0 | 0 |
| FW 45: GB YTF rebuilding strategy 2A | 1,998 | 2,222 |
| FW 45: GB YTF rebuilding strategy 2B | 1,486 | 1,699 |
| FW 45: GB YTF rebuilding strategy 2C | 590 | 706 |
| FW 45: GB YTF rebuilding strategy 2D | 2,584 | 2,784 |

**Figure 39 – No Action GB yellowtail flounder SSB trajectory**



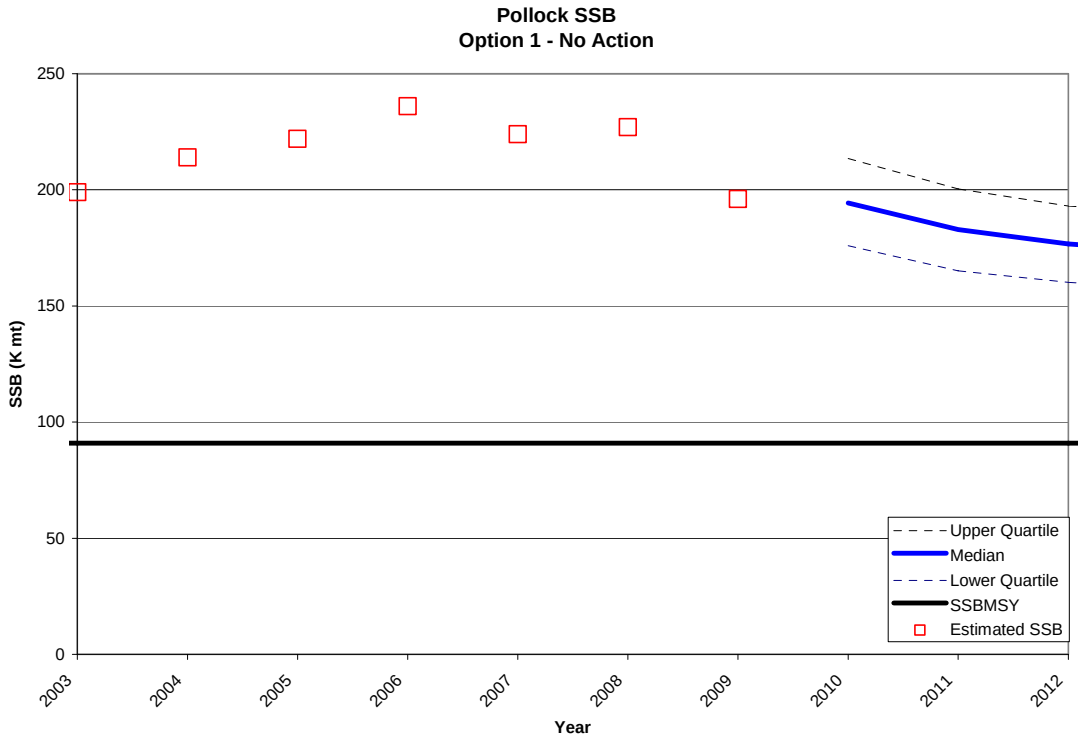

*Pollock*

The pollock OFLs/ABCs/ACLs specified in FW 44 for FY 2011 and 2012 were developed using an average of the fall trawl survey index and an exploitation rate of 75% of $F_{MSY}$. At the time this was adopted pollock was determined to be overfished and overfishing was occurring. The default ABC control rule was used to set these specifications because of concerns over the ability to develop a reliable rebuilding projection from the index assessment. The No Action ABCs and ACLs are less than half the alternative values being considered. As a result, fishing mortality would be lower and stock size higher under No Action than the alternative.

SAW 50 (NEFSC 2010) developed an analytic assessment of pollock that concluded the stock was not overfished and overfishing was not occurring (see section 6.2.2 for current stock status). The acceptance of this assessment facilitates the use of projections to estimate fishing mortality and stock size at for identified catch levels. If the No Action/FW 44 ABCs for pollock are input

into the projection model as catch in 2011 and 2012, fishing mortality would be expected to be about 0.08 in 2011 and 2012 and median SSB would remain above 176,000 mt. For the uncertainty that is captured by the assessment, there is essentially no chance the stock would be overfished or subject to overfishing during these two years. It should be remembered that the projections do not account for all sources of uncertainty.

**Figure 40 – No Action pollock SSB trajectory**




## Option 2: Revised Annual Catch Limits for Modified Stocks

*GB Cod*
The total ABC for Option 2 does not differ from that for the No Action alternative. As a result, stock size and fishing mortality under this option are not expected to differ from that described under the No Action alternative. The rebuilding trajectory would be as shown in Figure 38.

The distribution of the ABC does differ from the No Action alternative. This is because the TACs proposed for the U.S./Canada area for 2011 are known and have been incorporated into the table. The reduced cod TAC for the U.S./Canada area (see section 4.1.4) results in a shift of available catch from the eastern area to the western area. It is unknown whether this will have biological impacts on the cod stock. It is possible that catching more fish on the western component of the stock may have unexpected effects on rebuilding.

*GB Haddock*
The total ABC for Option 2 does not differ from that for the No Action alternative. As a result, stock size and fishing mortality under this option are not expected to differ from that described under the No Action alternative. The rebuilding trajectory would be as shown in Figure 38.

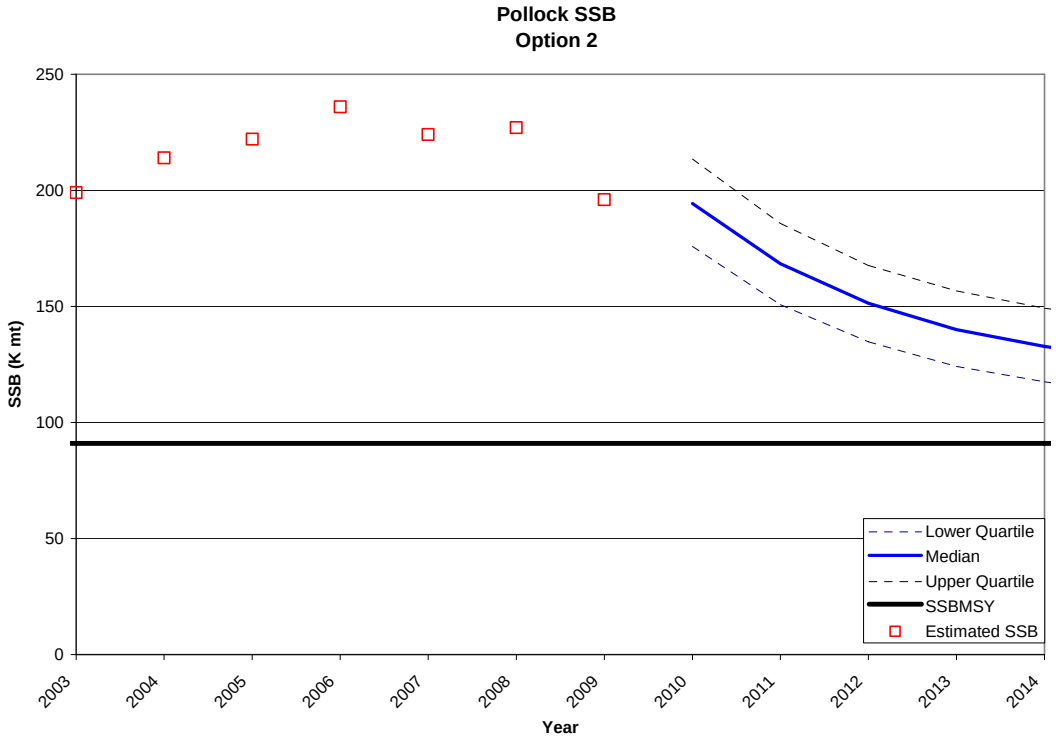
The distribution of the ABC does differ from the No Action alternative. This is because the TACs proposed for the U.S./Canada area for 2011 are known and have been incorporated into the table. This is not as much a concern for this stock since it is estimated to be above $SSB_{MSY}$.

*GB Yellowtail Flounder*
The revised OFLs/ABCs/ACLs include five sub-options for GB yellowtail flounder (the No Action rebuilding strategy and four sub-Options A-D). Each option results from a specific rebuilding strategy that is being considered in section 4.1.2. All of the options incorporate the TMGC recommendation for the allocation of GB yellowtail flounder to U.S. and Canadian fishermen.

The ABCs for all of the options are the result of a specific rebuilding strategy. Expected stock size trajectories and fishing mortality for each option are described in section 7.1.1.2. Sub-options 2A and 2D allow higher catches than the No Action ACL alternative and would result in lower stock size and higher fishing mortality. The other three alternatives would result in lower catches, lower fishing mortality, and higher stock size than the No Action ACL alternative.

*Pollock*
This option adjusts the pollock specifications based on the updated pollock assessment that resulted from SAW-50. All specifications are based on new estimates of stock size and status determination criteria. The ABC is calculated at a fishing mortality that is 75 percent of $F_{MSY}$. The expected fishing mortality resulting from the catch is 0.31, and there is less than a 10 percent probability of overfishing in any single year between 2011 and 2014. The stock size trajectory is shown in Figure 41. Because the stock is estimated to be well above $SSB_{MSY}$, stock size will decline. Since the catch under this option is higher than under the No Action alternative, stock size will decline more than under No Action and fishing mortality will be higher. Even so, under this option the stock is not expected to be overfished (stock size is unlikely to be below $SSB_{MSY}$) and overfishing is not likely to occur.

**Figure 41 – Option 2 pollock SSB trajectory**




As stated earlier, the projections do not capture all the uncertainty in the assessment. In the case of pollock this is an issue because this is the first analytic assessment that was completed in over three years. One source of uncertainty in the assessment highlighted by assessment reviewers is the selectivity in the survey and the fishery: "The ASAP model with dome-shaped survey and fishery selectivity implies the existence of a large biomass (35 – 70% of total) (i.e. cryptic biomass) that neither current surveys nor the fishery can confirm" (NEFSC 2010). Further the review panel advised "The projections of stock biomass are appropriate if the survey and fishery selectivity assumptions are true. However, density dependent influences on recruitment could become an issue if flat-topped survey selectivity is true but a domed selectivity was used to undertake the projections…The Panel recommends that it would be useful when making stock projections to more explicitly formulate the consequences to the pollock stock of different model assumptions in a decision table similar to that employed in risk assessment." (O'Boyle, pers. comm.)

At the assessment meeting a sensitivity run was performed that assumed flat-topped selectivity in the survey, but continues to use dome-shaped selectivity in the fishery. This reduces current stock size estimates by about 30 percent. This model formulation can be used to explore the impact of the selectivity assumption on the probability of overfishing and the probability of being overfished. *It is important to note this is not the model formulation accepted by the review panel.* Nor does this model account for all elements of model uncertainty; for example, it does not incorporate flat-topped selectivity in the fishery. But it does provide some indication of the effects of the dome-shaped selectivity pattern on catches and future stock size.

When evaluating the consequences of different model assumptions, an important issue is how long an incorrect assumption would guide catch advice before an error was detected and could be

corrected. Presumably this would not occur until the next benchmark assessment for the stock. While the next pollock assessment has not been scheduled, it is reasonable to assume that it will not be conducted until at least 2015. The following sensitivity analyses assume an incorrect assumption on model structure guides catch advice through 2015 and then is corrected. This is longer than the period for the proposed OFLs/ABCs/ACLs, which will be revisited in 2013.

Another issue is what metric to use for determining if the stock is overfished and if overfishing is occurring under a particular model formulation. The two different formulations produce different estimates of $F_{MSY}$ and $SSB_{MSY}$. The value of $F_{MSY}$ for the flat-topped formulation, at F=0.39, is lower than the $F_{MSY}$ =0.41 of the accepted model, and $SSB_{MSY}$ is reduced to 58K mt. The following tables indicate the metric used. "Dome $SSB_{MSY}$" refers to the value estimated by the approved assessment model, or 91K mt. "Flat $SSB_{MSY}$" refers to the value estimated by the flat-topped survey selectivity formulation, or 58K mt.

The sensitivity runs used the proposed ABCs in a projection based on the flat-topped survey selectivity assessment. Results are summarized in Table 87. The results indicate that overfishing is likely to occur, but the stock is not likely to be overfished during the period 2011 – 2015 when compared to the $SSB_{MSY}$ estimate from the flat-topped survey selectivity assessment.

The results can be summarized in a table that compares the risk of overfishing and being overfished between 2011 -2015 under the different catch scenarios. While O'Boyle (2010, pers. comm.) suggests there are four possible scenarios to consider, when applied to the risks associated with a catch stream the results collapse into two possibilities for the model formulations examined. This is because the model formulations are mutually exclusive. Either the dome shaped selectivity is correct (true), or it is incorrect (false) and the flat-topped selectivity model more accurately represents stock status. Table 88 summarizes the risks for the two model formulations. The table is somewhat misleading because this evaluation of risk does not consider the likelihood a particular model is correct. The table implies the two models are equally probable. Clearly this is not the case since only one model was accepted by reviewers.

If the dome shaped selectivity is true, there is little risk of overfishing or being overfished through 2015 under the proposed ABCs. If the dome is false, the option 2 ABCs are likely to result in overfishing. The proposed ABC has a medium risk of the stock being less than 45K mt by 2015, but a low risk of the stock being less than 29K mt by 2015.

**Table 87 – Results of sensitivity projection assuming flat-topped survey selectivity and Option 2 ABCs**

| Year | Catch | Median F | Median $SSB_{MSY}$ | Prob. $F>/F_{MSY}(0.39)$ | Prob. SSB > ½ Dome $SSB_{MSY}$ | Prob. SSB > ½ Flat $SSB_{MSY}$ |
|---|---|---|---|---|---|---|
| **75% of $F_{MSY}$ (Dome)** | | | | | | |
| 2011 | 16.914 | 0.595 | 70.052 | 0.978 | 0.974 | 0.995 |
| 2012 | 15.393 | 0.641 | 61.090 | 0.981 | 0.880 | 0.993 |
| 2013 | 15.554 | 0.668 | 55.796 | 0.985 | 0.781 | 0.981 |
| 2014 | 15.970 | 0.701 | 51.703 | 0.978 | 0.678 | 0.949 |
| 2015 | 16.266 | 0.780 | 47.460 | 0.981 | 0.553 | 0.895 |

**Table 88 – Summary of risk associated with proposed catch. Note that as presented this table implies the two model formulations are equally likely. This is not the case since the review accepted only the dome selectivity model.**

**Low: < 25 percent**
**Med: 25 – 50 percent**
**High: Over 50 percent**

| Catch Scenario | Dome True/Flat False | Dome False/Flat True |
|---|---|---|
| Risk of Being Overfished By 2015 | | |
| 75% $F_{MSY}$ | Low | Low/Med |
| Risk of Overfishing By 2015 | | |
| 75% $F_{MSY}$ | Low | High |

### 7.1.1.4 U.S./Canada Resource Sharing Understanding TACs

**Option 1: No Action**

The biological impacts of the No Action Alternative would be primarily negative. The No Action Alternative does not represent the appropriate level of TACs from a biological perspective, and would allow fishing mortality to be too high. Allowing an excessive amount of fish to be caught would represent a level of fishing mortality that exceeded the desired level of fishing mortality. If the appropriate levels of fishing mortality were exceeded, it is likely that stock rebuilding would be slowed. Under the No Action Alternative (with no TACs specified), it is possible that excessive harvest could occur for all three shared stocks. Since 2004, the U.S./Canada TACs have proved effective at controlling fishing effort on the shared stocks, in a precise manner.

**Option 2: U.S./Canada TACs**

The proposed TACs are at levels that correspond to the fishing mortality rates consistent with the management strategy agreed to under the Understanding, and the recommendations of the Science and Statistical Committee (SSC) for GB yellowtail flounder. Under the Understanding, the strategy is to maintain a low to neutral risk of exceeding the fishing mortality limit reference ($F_{ref}$ = 0.18, 0.26, 0.25, for cod, haddock, and yellowtail flounder, respectively). When stock conditions are poor, fishing mortality rates should be further reduced to promote rebuilding. The recommended 2011 TACs for cod, haddock, and yellowtail flounder were based upon the most recent stock assessments (TRAC 2010). The 2011 TACs for Eastern GB cod and haddock, and GB yellowtail flounder, were recommended by the Transboundary Management Guidance Committee (TMGC), based upon the fishing mortality strategy shared by both the United States and Canada. The full justification for the proposed TACs is described in Section 4.1.4 of this EA.

Based upon fishing years 2004 through 2009, information on catch (landings and discards) from the U.S. Canada Management Area, the management measures implemented by Amendment 13 and subsequent framework adjustments have restrained the catches of GB cod, haddock, and yellowtail flounder to below their respective TACs with two minor exceptions. In FY 2007, the catch of GB yellowtail flounder exceeded the TAC by nine percent due to some late reporting and because a portion of the yellowtail catch by the scallop fleet was not considered until after the end of the fishing year. A downward adjustment was made in the size of the 2008 TAC. In order to

prevent such an overharvest from recurring, the monitoring methodology was modified to evaluate the amount of yellowtail catch from the scallop fishery more frequently. In 2009, the GB yellowtail catch exceeded the TAC by 9 percent (153 mt), as a result of increases in the catch rate late in the fishing year. A downward adjustment was made to the FY 2010 TAC, which resulted in an adjusted overall TAC of 1,047 mt for FY 2010.

Based upon preliminary information, NMFS does not anticipate that there will be an overage (i.e., the catch will not exceed the TAC) for FY 2010 for Eastern GB cod, Eastern GB haddock, or GB yellowtail flounder.

Although it is not possible to separate out the precise impact of the hard TACs on the overall pattern of fishing behavior and landings, the TACs and associated regulations have played an important role in determining fishing patterns on GB, as further explained in the Economic Impacts of the proposed TACs. Because the proposed TACs are based upon fishing mortality rates that are in accordance with the Understanding and the FMP, and the management measures that are associated with the U.S. Canada Management Area have been demonstrated to effectively control fishing effort, the proposed TACs are appropriate and will contribute toward the growth of the GB cod and yellowtail flounder stocks, and the maintenance of the GB haddock stock. The shared harvest strategy of the Understanding is maintaining a low to neutral risk of exceeding the fishing mortality reference point (F reference) and when stock conditions are poor, fishing mortality levels should be further reduced in order to promote stock rebuilding. Because the TACs will contribute toward the growth and maintenance of the stocks, the biological impacts will be positive. As a result of the implementation of Amendment 16 in FY 2010, and the fact that the large majority of vessels are fishing in sectors, there have been substantive changes in fishing behavior in the groundfish fishery in FY 2010, which arguably could result in a different risk than the historical risk that the FY 2011 U.S./Canada TACs will be exceeded. At this time it is not clear whether the risk of exceeding the U.S./Canada TACs is more or less than in the past. The increased observer coverage in the fishery, as well as other augmented monitoring methods implemented in FY 2010, however, support the contention that the risk of overharvest in FY 2011 will be reduced. Furthermore, it should be noted that the ACLs specified in this action for FY 2011 account for management uncertainty.

A delay in the opening of the Eastern U.S./Canada Area to trawl vessels (for both Sector and non-sector vessels) until August 1, 2011, will likely result in a reduced chance that the cod TAC will be caught or exceeded because trawl vessels will not have access to the area during the period when cod is typically caught at a relatively high rate.

FY 2011 will be the second year the FMP has operated under the revised sector regulations, with the likelihood of a very high percentage of active vessels participating in sectors. Trip limits (that only apply to vessels fishing in the common pool) will play a reduced role in in-season management of catch rates for most vessels, and sectors will continue to have more choices regarding fishing strategy.

#### 7.1.1.5 Yellowtail Flounder Allocations for the Scallop Fishery

**Option 1: No Action**

*To be completed*

**Option 2: Revised Allocations**

*To be completed*

### 7.1.2 Fishery Program Administration

#### 7.1.2.1 Implementation of Additional Sectors

**Option 1 – No Action**

Under the No Action option there would not be any additional sectors authorized; the existing nineteen sectors would remain the only authorized sectors. As analyzed in Amendment 16, The existing sectors were expected to result in a greater likelihood that fishing mortality targets would be achieved since catches by vessels in the fishery would be limited by a hard quota for allocated stocks. Sectors were also expected to result in reduced discards, since sector vessels would not be subject to regulatory trip limits for groundfish species. There was also an expectation that there would be less time spent fishing by sector vessels since they would fish more efficiently. Finally, the realization of some of these benefits depended on accurate catch monitoring.

With only six months of sector operations completed it is too early to draw definitive conclusions on whether these expectations have been met. Information in the AE (section 6.5.3) indicates that sector catches have been kept below allocations so far this year. While discards have been reduced for some stocks – primarily those that were subject to trip limits in FY 2009 – for other stocks there has not been decline. Effort – in terms of both the number of trips and the time spent at sea – has declined as expected by Amendment 16. It is not clear yet whether catch reporting has been accurate. On the whole, however, preliminary indications are that catches under sectors are likely to be at levels expected to achieve the mortality targets of the FMP.

**Option 2 – Implement New Sectors for FY 2011**

Under this option seven additional sectors would be authorized.

The biological impacts of this action are likely to be minor when compared to the No Action alternative. Much of the fishery is already operating under sector rules (over 95 percent of the catch is allocated to sectors) and it is not likely that the addition of these sectors will substantially change sector membership. There may be subtle shifts in the catch that have impacts on specific stocks but the overall impacts of the FMP are not likely to change.

Four of the sectors would be formed as NMFS-sponsored state-operated permit banks and would not consist of any active fishing vessels. NMFS has provided $1 million to each of four states to form permit banks. These funds will be used to acquire limited access permits with groundfish PSC. The ACE associated with that PSC will be leased to vessels in other sectors (there is a chance that some permits will be held by the state outside of the sector and the DAS leased for cooperative research). States have signed an MOA with NMFS on the use of the funds that restrict leasing activity to smaller vessels from small coastal communities. As a result, it is possible that when compared to No Action this will lead to increased fishing activity in inshore

areas and on inshore stocks. Whether this shift actually occurs depends on how the permits purchased by the states have been used in the past. The total amount of catch obtained by the states is not likely to exceed 2 million pounds, or about 907 mt. This is a small portion of the total groundfish catch.

A fifth sector is being proposed to operate as a lease only sector, and a sixth sector may operate as either a lease only sector or a sector with active vessels. The addition of two lease-only sectors and the state-operated permit banks may facilitate the transfer of ACE between sectors, which might lead to a greater portion of the available ACE being caught when compared to the No Action alternative. But with only part of the fishing year completed it is too early to tell if catches will fall significantly short of the available ACE and thus adding permit banks would lead to a substantial change.

One new sector is proposed to operate with active fishing vessels. Given the fact most of the catch his already allocated to existing sectors, the addition of one sector is not likely to have large impacts. It is possible that if active vessels are fishing in more sectors, the uncertainty around discard estimates will be higher than under No Action since there will be more discard strata that are estimated. It is not clear if one sector will make a noticeable difference since the overall CVs under sectors have not yet been calculated.

#### 7.1.2.2 Monitoring Requirements for Handgear A and Handgear B Permitted Vessels and Small Vessel Exemption Vessels

**Option 1 – No Action**

Under the No Action alternative, vessels with Handgear A, Handgear B, and Small Vessel Exemption permits would be subject to the same requirements for dockside monitoring as other common pool vessels. Measures adopted in Amendment 16 require that all common pool vessels would be subject to dockside monitoring beginning in FY 2012, when the hard TAC AM is implemented for common pool vessels. The current required level of coverage is for 20 percent of trips to be monitored.

Under the No Action alternative there may be a minor improvement in the accuracy of landings information from these vessels. Dockside monitoring is proposed in order to verify the accuracy of landings information. Because this program was first adopted in FY 2010 (for limited access vessels participating in sectors) there is no data with which to evaluate the effectiveness of this requirement for handgear and small vessel exemption vessels. 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 (see section 6.5.3.5), 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.

**Option 2: Dockside Monitoring Exemption for Handgear A and Handgear B Permits and Small Vessel Exemption Permits**

This option removes the requirement that Handgear A, Handgear B, and Small Vessel Exemption vessels fishing in the common pool have 20 percent of their trips monitored by dockside monitors

beginning in FY 2012. The requirement would remain for Handgear A and Small Vessel Exemption Vessels that fish in sectors (Handgear B vessels are not eligible to join sectors).

When compared to the No Action alternative there is a possibility that if this measure is adopted the catch information from these permit holders might be slightly less accurate than if the requirement remains in place. This assumes that on some of the trips that might be monitored (1 in 5) the absence of the monitor leads to inaccurate reporting. There is no empirical evidence to determine if this will actually occur. 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 (see section 6.5.3.5), the percentages of landings are higher but still a small part of total landings and marginal changes in catch data are not likely to be detectable. As a result, it is very unlikely that there will be detectable biological impacts of this measure when compared to No Action.

#### 7.1.2.3 Monitoring Requirements for Commercial Groundfish Fishing Vessels

**Option 1: No Action**

Under the No Action option, the monitoring requirements adopted by Amendment 16 for commercial groundfish fishing vessels would continue. This includes both at-sea monitoring at a level sufficient to meet requirements and dockside monitoring of 20 percent of trips. 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.

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 20 percent 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 in FY 2012 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 this option the dockside monitoring program will also continue. As a result, the ability to constrain sector catches to the desired quotas should continue. This should contribute to achieving mortality targets.

**Option 2: Removal of Dockside Monitoring Requirements**

This option removes the requirement for dockside monitoring of 20 percent of commercial groundfish trips (for sector vessels beginning in FY 2011 and for all other vessels beginning in FY 2012). As a result, landings from these trips will not be independently verified, though dealer reports and vessel reports will still be required. There is a possibility that as a result landings information will be less accurate than under the No Action alternative. The extent to which this will occur is unknown since there is no experience with which to characterize the effectiveness of

dockside monitoring in this fishery. Nevertheless, the lack of dockside monitoring of 20 percent of trips creates an opportunity for additional inaccurate landings reports to be submitted. This could lead to less certainty in controlling catches to the specified TACs, leading to a failure to achieve mortality targets. Under this option such a result is more likely than under the No Action alternative even though the difference cannot be quantified.

**Option 3: Removal of Requirement for Industry Funding of Monitoring for FY 2012**

*Multispecies Stocks*

This option removes the requirement for industry funding of at-sea monitoring in FY 2012. While this does not have direct biological impacts, at-sea monitoring is essential to provide accurate information on discards. Discard information is needed so that assessments are based on total catch. Without this information there is more uncertainty on fishing mortality estimates and as a result a greater likelihood that rebuilding targets and mortality goals may not be met.

When evaluating the biological impacts of this measure it is not clear what funding will be available in the absence of industry finding. At one extreme, the federal government may provide the funding necessary for an adequate at-sea monitoring program that achieves the standards required by NMFS, including the SBRM CV standard specified as a minimum by the Council. If this occurs, then from a biological perspective there would not be any difference between this option and the No Action alternative. The same information would be available in either case. The current targeted coverage rate is 38 percent of trips; as of mid-October 2010, coverage was falling short of this goal and was at 33 percent, with the rate for individual sectors ranging from 25 percent to 105 percent. Amendment 16 established that at a minimum the at-sea monitoring coverage should be sufficient to achieve the CV established buy the SBRM (NEFMC XXXX?). These values have not yet been calculated so it is uncertain if the standard is being met.

While it is possible that the federal government would provide a lower level of funding than that required to meet monitoring standards it seems unlikely that all funding will be removed. For argument's sake, the funding level might be similar to the funding that provided coverage of 8 percent of groundfish trips prior to the provision of increased funding for the implementation of sectors. This level was sufficient to meet the SBRM CV standard for most stocks for the fishery as a whole. It is unlikely to be a sufficient level of coverage to meet the CV standard for each sector, as required by Amendment 16. Indeed, Palmer (2010) reports the results of simulation studies that suggest that even if 40 percent of trips are observed it is unlikely that the CV standard will be met for all sectors.

An additional concern is that these CV evaluations do not consider the possibility that vessels may be operated in ways that bias the estimation of discards based on observer coverage. Vessel operators may not fish in the same manner when an observer is present. This observer effect, as it is commonly called, is difficult to detect and one of the few ways to minimize its influence is to increase observer coverage. With a reduced coverage level, there are more trips when fishing behavior may not be the same as on observed trips. As a result the accuracy of discard estimates may decrease.

Whether the proposed change affects the ability of assessment scientists to accurately measure fishing mortality depends in part on the overall magnitude of actual discards. If the actual discards are only a small portion of removals, then whether the estimates are biased or are not precise may have little influence on stock status. As the actual discards increase, the inaccuracy

of estimates becomes more troublesome. In-season discard estimates in 6.5.4 indicate that discards are estimated to be less than 20 percent of the catch by sector vessels for all stocks. The three stocks where discards are approaching 20 percent of the sector catch are plaice, CC/GOM yellowtail flounder, and SNE/MA yellowtail flounder. These three stocks are the ones most likely to have assessment accuracy influenced by less precise discard estimates.

*Other stocks*

While these analyses focused on multispecies stocks, the reality is that other stocks are caught on sector groundfish trips and if fewer trips are observed the discard estimates for those stocks will also be affected. Monkfish, skates, and dogfish are three stocks that are often caught on these trips. Skates and dogfish are of relatively low value, are managed by trip limits, and as a result are frequently discarded. Estimates of the discards of these stocks are the ones most likely to be affected by reduced observer coverage if funding is not available for at-sea monitoring.

*Summary*

In summary, when compared to No Action the removal of the requirement that the industry fund at-sea monitoring in FY 2012 increases the risk that an adequate monitoring system may not be in place for that year. This could lead to increased uncertainty about actual catches, making it less likely that mortality objectives will be achieved. On the whole this increased uncertainty can only be viewed as having negative biological impacts on groundfish and non-groundfish stocks.

**Option 4: Trip-end Hail Requirement**

This option requires all groundfish vessels subject to VMS requirements (i.e., all sector vessels, and common pool vessels that fish under a groundfish DAS or in multiple broad stock areas on the same trip) to submit a trip-end hail report to NMFS detailing the expected landing and offloading time and location for each groundfish trip even though the formal dockside monitoring program originally implemented under Amendment 16 is eliminated. This report provides the information necessary to facilitate the inspection of vessel offloads by enforcement personnel, increasing the likelihood that such offloads will be monitored despite the removal of a separate formal dockside monitoring program. Compared to the No Action alternative, this option will provide less assurance that landings will be reported accurately, or that all fish will be offloaded. However, compared to Option 2, this option could continue to reduce incentives to misreport or underreport landings, leading to slightly more certainty in controlling catches and achieving mortality targets, although the degree to which this option will affect compliance with reporting and landing regulations cannot be quantified. This option could also provide similar benefits to the accuracy of landings information for non-groundfish species landed from groundfish trips.

### 7.1.2.4 Distribution of PSC from Canceled Permits

**Option 1: No Action**

Under the No Action alternative, when a limited access permit that is eligible for a sector is canceled, the PSC associated with that permit is assigned to the common pool. The biological impacts of this practice are difficult to determine. In FY 2011, common pool vessels will be

managed by effort controls such as DAS limits and trip limits, but in FY 2012 these vessels will also be subject to a hard TAC. If the number of permits that are cancelled is only a small number, the effects are minor. If the permits that are cancelled were in sectors, then in FY 2011 this option shifts the available catch from a sector controlled by a hard quota to the common pool where effort controls are used. As a result, the amount of catch where there is less certainty that measures will constrain catches increases slightly and thus there is less certainty of meeting mortality objectives. If the permits are already in the common pool, however, there is no expected biological impact of this practice. After FY 2012, it will not matter which component the cancelled permits were in as both groups will be managed by a hard TAC. If a large number of permits are cancelled – such as through a vessel buyout – the impacts are less certain. On the one hand, if the cancelled permits were in sectors and the associated PSC is added to the common pool, the amount of catch controlled by less certain effort controls increases, enhancing the risk that mortality controls will not be achieved. But the number of vessels fishing in the common pool does not automatically change, which may mitigate this effect to some extent as more fish are available for common pool vessels, making it less likely that they will exceed their available catch. In effect, the PSC assigned to the common pool becomes a buffer between the PSC associated with the vessels fishing and the level of catch that exceeds mortality targets.

**Option 2: Even Redistribution Among All Remaining Permits**

Unlike the No Action alternative, in this option if a permit is cancelled the associated PSC is redistributed proportionally to all other permit holders. The end result is that with a small number of cancelled permits there is a marginal increase in the PSC associated with all permits. As a result, the source of the cancelled permit (common pool or sector) is less important in FY 2011 since not all of the PSC is assigned to the common pool: some of the PSC either remains subject to the sector quotas (in the case of a cancelled permits that was in as sector) or becomes subject to sector quotas (in the case of a cancelled permits that was in the common pool). In the case of a small number of permits, this option may be marginally more likely to achieve mortality targets than the No Action alternative, but any differences are likely to be slight; and in FY 2012 and beyond, there is not likely to be any difference since both groups will be managed by hard TACs. In the case of a large number of permits exiting the fishery - such as in a vessel buyout – the difference from No Action will be greater in FY 2011 when the common pool remains under effort controls (i.e. this option will have a greater likelihood of achieving mortality targets).

The proposed formula simplifies the calculation of the PSC for each permit. It can be shown to be equivalent to recalculating all individual PSCs as follows:

Let $P_n$ be the landings for a permit during the qualification period.

Then the PSC for the permit is:

$$P_n / \sum_1^n P_n$$

Where *n* is the total number of permits eligible to join as sector.

The sum over all permits adds to 1:

$$1= \sum_1^n (Pn \Big/ \sum_1^n Pn)$$

If permits are removed from the fishery, then the total remaining share is the original 1 minus the sum of the shares that exit the fishery:

$$(1- \sum_1^b (Pb / \sum_1^b Pb )$$

Where b represents the permits that exit.

Compute factor:

$$1/(1- \sum_1^b (Pb / \sum_1^b Pb )$$

Multiplying the shares remaining by this factor gets the total shares back to 1:

$$(1- \sum_1^b (Pb / \sum_1^b Pb ) \ * \ 1/(1- \sum_1^b (Pb / \sum_1^b Pb ) = 1$$

Multiplying each permit share by this factor gets the total back to 1.

#### 7.1.2.5 Submission of Sector Rosters

*To be completed*

### 7.1.3 Commercial and Recreational Fishery Measures

#### 7.1.3.1 General Category Scallop Dredge Exemption – Modification of Restrictions

**Option 1: No Action**

The No Action option maintains two seasonal closures in the Great South Channel Scallop Exemption Area that are designed to protect spawning yellowtail flounder. These closures were adopted when the exemption was implemented in August, 2006. The EA supporting the action (NMFS 2006) justifies the closures as necessary to protect rebuilding stocks of yellowtail flounder but provides no analysis or rationale for creating the closures for the General Category

Scallop Fishery when groundfish fishing is allowed in the area at the same time, and limited access scallop vessels are not subject to the same restrictions. The EA does not provide evidence describing the specific impacts of scallop dredge fishing on yellowtail flounder spawning activity.

General Category scallop fishing vessels tend to have low bycatch rates of yellowtail flounder and other groundfish (NMFS 2006), but fishing on spawning aggregations may have impacts beyond those on fishing mortality. Thompson (pers. com.) summarized these in a letter to the Council as follows:

- Fishing activity may disrupt spawning signals and thereby reduce spawning success (Rountree et al. 2006);
- Fishing activity may disturb spawning habitat or habitat essential for early life history stages;
- Spawning fish are stressed and may be less able to survive handling, or capture may reduce egg production, even if fish are released (Taylor et al. 2001);
- Fishing increases mortality which reduces the number of older fish spawning. This may have adverse impacts as there is evidence (at least for cod) that first time spawners perform poorly compared to repeat spawners (Trippel, 1998).

Yellowtail flounder in the Southern New England area are believed to spawn during April to June (NMFS 1999); more precise information on spawning times and locations is not reported. MARMAP icthyoplankton surveys documented egg concentrations in this area from April to May, with a peak in May (see Figure 42). Observed catches of yellowtail flounder in all dredge gear (general category and limited access trips) from 2006 through 2009 were examined to determine if there was evidence of seasonal changes that corresponded with the spawning periods. The spawning area closures are in SA 521 and 526; see Figure 1). Because of a lack of observations in all months and all years, a ratio was calculated for each month and the average of the months over the time period was determined. These data are inconclusive in SA 521, where catches seem to peak in mid-summer (July-August) rather than in April through June. But in SA 526, there is a pronounced increase in June but an even higher peak in December. Catches in SA 526 also appear higher in mid-summer than in the late spring. The distribution of observed tows (Figure 44) shows that the largest catches of yellowtail flounder in SA 521 and 526 during the April through June period tend to be east of the NLCA, just south of the spawning area closure. There are few observed trips in SA 521 during this period so these data should be viewed with caution.

In summary, the distribution of yellowtail flounder eggs observed in MARMAP surveys suggest spawning activity in the area of the closures in April through June. Observed catches of yellowtail flounder in scallop dredges indicate that catches increase rapidly in June in SA 526, but in SA 521 there is less of an indication that catches increase during the reported period of spawning activity. To the extent that dredge activity interferes with spawning activity, under the No Action alternative the spawning closures will reduce scallop dredge fishing interference with yellowtail flounder spawning.

**Figure 42 – Distribution and abundance of yellowtail flounder eggs collected from NEFSC MARMAP surveys, February to September, 1977-1987 (copied from NMFS 2009, EFH Source Document for Yellowtail Flounder)**

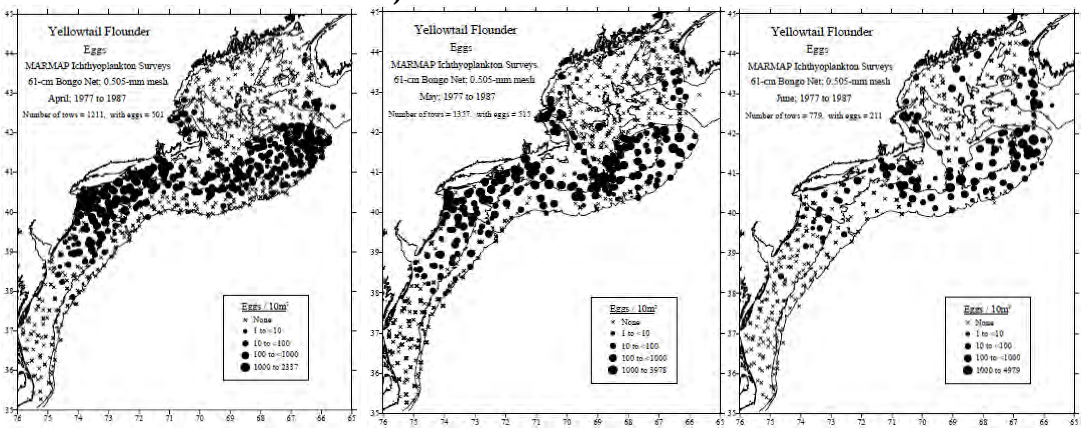



**Figure 43 – Ratio of yellowtail flounder discarded to scallop meat weights kept by scallop dredge vessels in statistical areas 521 and 526 (average of 2006-2009 monthly ratios)**

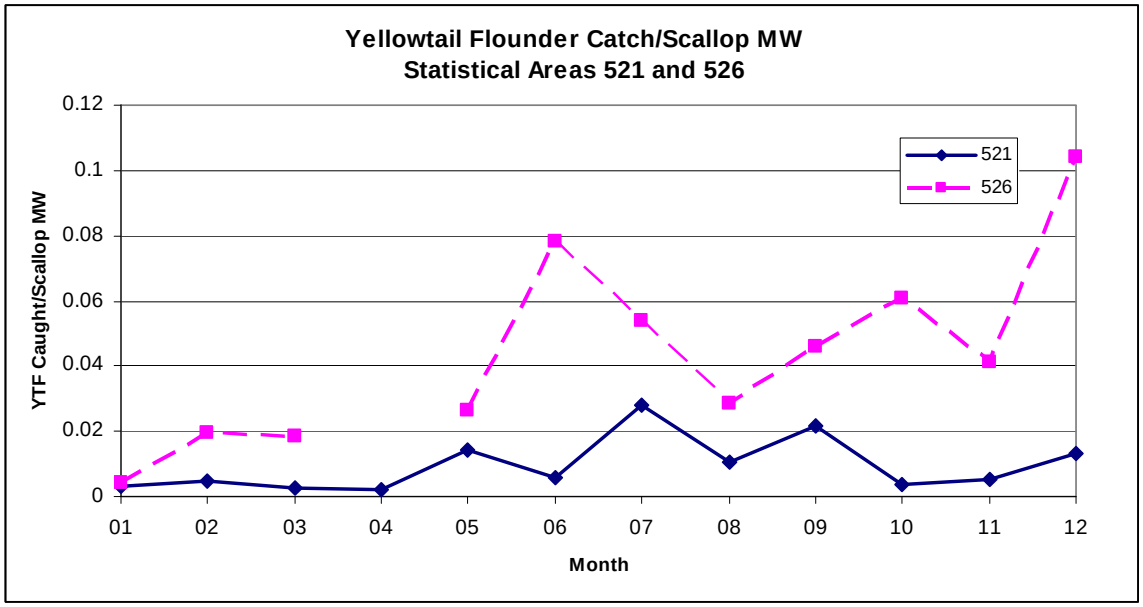
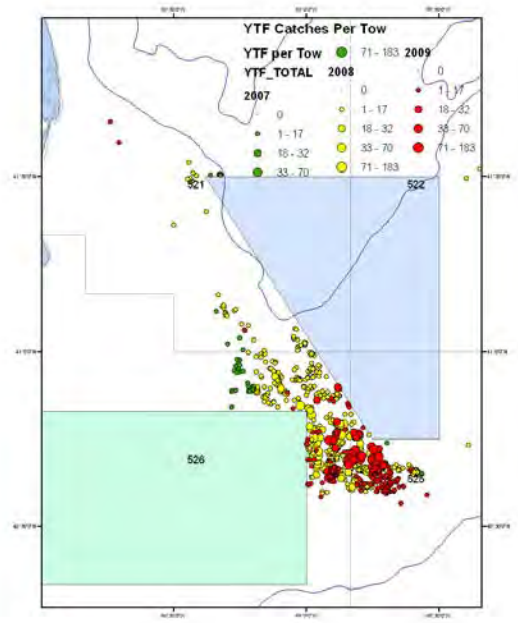


**Figure 44 - Observed dredge catches of yellowtail flounder, April – June, 2007 - 2009**




**Option 2: Exemption from Yellowtail Flounder Spawning Closure**

This option eliminates the two spawning area closures that are designed to reduce the interference of General Category scallop fishing with spawning yellowtail flounder. As noted in the description of the No Action alternative, the spawning closures may provide some un-quantified benefit to protecting yellowtail flounder. Removing the closures under this option will provide less protection to spawning fish than the No Action alternative. These benefits are marginal, however, since the closures do not apply to groundfish fishing vessels (some that may be targeting yellowtail flounder) or limited access scallop dredge trips.

When the closures were implemented as part of the authorization of the Great South Channel Scallop Exemption area, the General Category (GC) fishery was an open access fishery managed through the use of a trip limit. There was no limit on the number of trips and no limit on the number of participants. The GSC exemption area thus had the potential of creating the opportunity for an unlimited number of trips targeting scallops during the period of yellowtail flounder spawning. The groundfish fishery and the limited access scallop fishery are allowed to fish during the closures but are limited by DAS limits, and part of the area is subject to the May GB closure for groundfish fishing vessels. The GC fishery is now an IFQ fishery with a limited number of participants and a fixed quota for every vessel; there is no longer the potential for unlimited effort in this area. Any catches of scallops that occur in April – June are catches that will not take place at other times if the year. In some cases, a shifting of scallop effort into these months might reduce overall bycatch since bycatch rates are higher during later months of the year. Some sense of the amount of GC effort that can be expected can be assumed by behavior in 2005 and 2006, before the closures were adopted. In these years, about XX percent of the total GC catch was taken from SA 521 and 526 between April and June.

A cooperative research experiment (Salerno et al 2008) was conducted in SA 521 and 526 to determine bycatch rates of yellowtail flounder in the scallop dredge fishery, document maturity stages of yellowtail flounder in the area, and document the distribution of yellowtail flounder in relation to commercially exploitable scallop beds. The experiment used commercial vessels and commercial gear. The Council's Research Steering Committee reviewed the experiment and raised concerns about the use of three different vessels, three different dredges and twin top sizes, and the lack of any attempt to extrapolate the impacts to fleet-wide impacts. The Committee concurred with this statement: "It is premature to reconsider the yellowtail flounder spawning closures or revisions to the timing of these closures for the GSCDEA based on this study." Nevertheless, the data in this study does supplement the available information on General Category scallop dredge vessels interactions with bycatch species in this area during April through June.

Salerno et al (2008) used three commercial vessels to dredge for scallops in SA 521 and 526 during the spring and fall of 2007. Catch rates of yellowtail flounder were low in all months, but were lowest in the spring (Table 89). Yellowtail flounder accounted for only 0.16 percent of the total catch; the highest value in the spring was in June when it was 0.17 percent of the catch. Winter and windowpane flounder were also caught in small amounts. Skates (all species combined) were caught in larger amounts, particularly in June and September. After converting scallop shell weight to meat weight, the experiment's ratios of yellowtail flounder to scallop meat weights are in the order of 2 percent, which is similar to the observed ratio of scallop meat weights to yellowtail flounder caught (Figure 43).

During the experiment researchers sampled 99 yellowtail flounder for maturity stage (Table 90). The largest amount of ripe and running fish were encountered in May when 36 percent of the fish sampled were in that condition. Unlike April, when spawning fish were only seen in SA 521, in May they were caught in both areas. The low number of fish sampled and one-year period of the experiment make it difficult to draw firm conclusions but these results indicate that there are spawning fish in the area, which is consistent with the time of yellowtail founder spawning identified in the EFH source document.

The distribution of yellowtail flounder observed in the experiment (Figure 46) is similar to that shown by observer data (Figure 44). Yellowtail flounder seem to be concentrated in the southern part of the GSC Scallop Dredge Exemption Area or just west of the northern boundary of CAI.

Removing the closures will result in an increase in scallop fishing in this area during the April – June months. Both observer data and a cooperative research project (Salerno at al 2008) indicate that bycatch rates of yellowtail flounder in this area are likely to be low during the spring months, with a peak in June. There is evidence of spawning activity, both based on MARMAP plots of egg distribution and maturity stages of sampled fish in a cooperative research experiment. On the whole removing the closures would be expected to result in negative impacts on yellowtail flounder in this area during spawning season. The relative scale of the impacts, however, is important.

The total General Category scallop catch is likely to be on the order of 3 million pounds in the near future (exact amounts vary from year to year based on stock status). Some sense of the amount of GC effort that can be expected in the area can be illustrated by behavior in 2005 and 2006, before the closures were adopted. In these years, about XX percent of the total GC catch was taken from SA 521 and 526 between April and June.

[Fill in information on how much of GC catch may come fro this area, expand to YTF bycatch, compare to LA catch,]

**Table 89 - Catch rates (lbs/hr) of selected species by month (from Salerno et al. 2008). Scallop weight is whole/live weight (i.e. shell weight not meat weight)**

| | sea scallop | monkfish | yellowtail flounder | winter flounder | windowpane flounder | skates, all combined |
|---|---|---|---|---|---|---|
| March | 129.5 | 0.1 | 0.4 | 1.1 | 0.3 | 10.6 |
| April | 315.1 | 0.0 | 0.4 | 0.6 | 0.6 | 9.8 |
| May | 332.0 | 0.7 | 0.6 | 1.3 | 1.2 | 29.7 |
| June | 346.0 | 8.2 | 0.9 | 0.8 | 1.6 | 83.1 |
| September | 232.0 | 8.6 | 1.1 | 0.5 | 4.7 | 82.9 |
| **Project Total (all months)** | **283.2** | **3.2** | **0.6** | **0.9** | **1.6** | **41.4** |
| **Project Total (April – September)** | **310.6** | **3.8** | **0.7** | **0.8** | **1.8** | **46.8** |

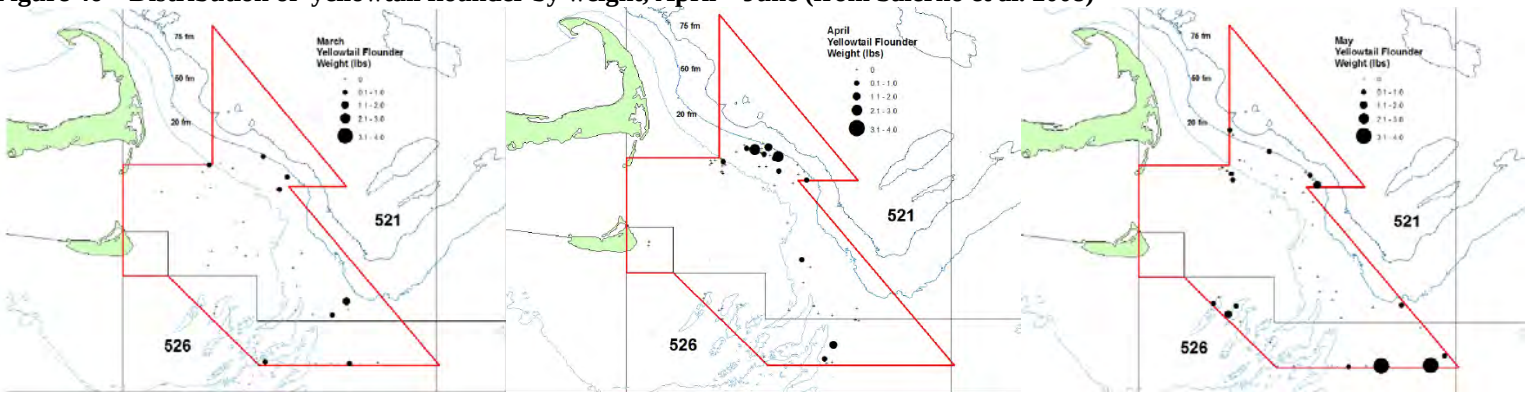
**Figure 45 – Number of yellowtail flounder by maturity stage in SA 521 and 526 (from Salerno et al. 2008)**

| | immature | developing | ripe/ ripe-running | spent | resting | **total** |
|---|---|---|---|---|---|---|
| April | 7 | 5 | 7 | 13 | 0 | **32** |
| May | 13 | 11 | 14 | 1 | 0 | **39** |
| June | 3 | 5 | 4 | 5 | 11 | **28** |
| **total** | **23** | **21** | **25** | **19** | **11** | **99** |

**Table 90 – Number of spawning yellowtail flounder by statistical areas (from Salerno at al 2008)**

| | statistical area 521 | | statistical area 526 | | **total** | |
|---|---|---|---|---|---|---|
| | # of fish | # per tow | # of fish | # per tow | **# of fish** | **# per tow** |
| April | 7 | 0.14 | 0 | 0 | **7** | **0.11** |
| May | 5 | 0.14 | 9 | 0.50 | **14** | **0.26** |
| June | 1 | 0.04 | 3 | 0.14 | **4** | **0.09** |

**Figure 46 – Distribution of yellowtail flounder by weight, April – June (from Salerno et al. 2008)**



### 7.1.3.2 Gulf of Maine Cod Spawning Protection Area

**Option 1: No Action**

The No Action alternative maintains current management measures in the inshore GOM for commercial and recreational vessels. The commercial management measures differ for vessels in the common pool and vessels in sectors. Vessels in the common pool are not allowed to fish in the inshore area during April, May, and June because of the existing rolling closures. Vessels in sectors are allowed to fish in the rolling closures during June and can request other exemptions from the rolling closures (none have been granted to date). With respect to the recreational fishery, the measures in place include a minimum fish size, bag limit, and seasonal prohibition on possession of GOM cod (November 1 – April 15).

These measures are designed primarily to control fishing mortality of this stock and while they may provide some protection to spawning fish the measures were not specifically designed for that purpose. Early management actions implementing the closures tend to focus on the closures as a method of reducing catches. FW 20 (NEFMC 1997) first considered seven area closure alternatives and focused the impacts analysis on the effect on cod landings without any mention of spawning closures. FW 25 (NEFMC 1998) adopted rolling closures "…targeting the areas of highest cod landings", with no mention of spawning closures in the document. FW 26 adopted additional protection for "spawning cod" and referred to existing closures as designed to reduce mortality and protect spawning cod but does not include any documentation identifying cod spawning times and areas. Beginning with FW 27 and continuing through Amendment 13, rolling closures were adjusted to control fishing mortality on a wide range of groundfish stocks, not just cod, making the link between the closures and cod spawning protection even more tenuous.

Nevertheless, there is evidence that the commercial closures do coincide with cod spawning activity in the Ipswich Bay area. Within the areas of the sector exemption in June, there is general information on spawning activity for several stocks. Table 91 summarizes the spawning periods for regulated groundfish in the GOM. According to Lough (2004), cod spawning in the GOM occurs from winter through spring but the time of peak spawning varies with location. Spawning in Massachusetts Bay peaks in January and February, north of Cape Ann it peaks between February and April, and off the coast of Maine it peaks between March and May. Generally, sector vessels are not automatically exempted from closures that overlap these cod spawning periods, though this is further explored below. The extended spawning periods for many groundfish stocks mean it is possible that the areas that are open to sector vessels may include spawning fish. Howell's acoustic tagging study in the Ipswich Bay area of the Gulf of Maine reports on specific activity associated with cod spawning and identifies relatively small areas that contained aggregations of spawning cod. Of particular interest are the peak spawning periods for American plaice and GOM haddock. American plaice maximum spawning occurs in the western Gulf of Maine, with peak spawning in April and May. They are batch spawners, releasing eggs every few days over the spawning period; nursery areas are found in coastal waters of the GOM (Johnson, 2004). Peak spawning for GOM haddock occurs between February and April; Jeffreys Ledge and Stellwagen Bank are the primary spawning sites (Brodziak 2005). Sector vessel access to the inshore GOM could have impacts on spawning activity of these two stocks.

Recent cod tagging studies provided additional information on cod spawning activity in the inshore GOM, including the areas and times of the rolling closures. Howell et al. (2008) reported a mark and recapture study of cod in the GOM, particularly related to the closed areas. Seasonal changes in abundance in the inshore areas were noted and these seemed consistent with spawning activity. In block 133, two peaks in abundance were observed: November-January and April – July, suggesting two distinct spawning populations. They concluded that the closure of block 124 in April, May, and November seemed appropriate to protect spawning fish, as did the closure of block 133 in April and May but possibly not June.

A more recent acoustic tagging study focused on a finer-scale investigation into spawning behavior in the Ipswich Bay area (Howell 2009). Howell's acoustic tagging study in the Ipswich Bay area of the Gulf of Maine reports on specific activity associated with cod spawning and identifies relatively small areas that contained aggregations of spawning cod during the spring. The study area (blue line) and area with cod detections (red line) is shown in Figure 47. Acoustic detections indicated that cod aggregated in specific locations within the study area while spawning during April through June (Figure 48).

Under the No Action alternative, recreational fishermen can target these aggregations of cod after April 15. Commercial vessels in sectors are allowed to target these aggregations in June. If they receive an additional exemption they might be allowed to target them in April and May as well. Common pool vessels are not allowed to target these aggregations due to the rolling closures. The No Action alternative thus does not provide complete protection to the spawning fish located by Howell (Howell et al. 2009).

It is possible that fishing on these spawning aggregations may have impacts on spawning activity other than just the removal of fish. As noted previously:

- Fishing activity may disrupt spawning signals and thereby reduce spawning success (Rountree et al. 2006);
- Fishing activity may disturb spawning habitat or habitat essential for early life history stages;
- Spawning fish are stressed and may be less able to survive handling, or capture may reduce egg production, even if fish are released (Taylor et al. 2001);
- Fishing increases mortality which reduces the number of older fish spawning. This may have adverse impacts as there is evidence (at least for cod) that first time spawners perform poorly compared to repeat spawners (Trippel, 1998).

**Figure 47 – Cod acoustic tagging study area. Blue line indicates areas monitored for cod detections, red line indicates area of detections. From Howell et al 2009.**

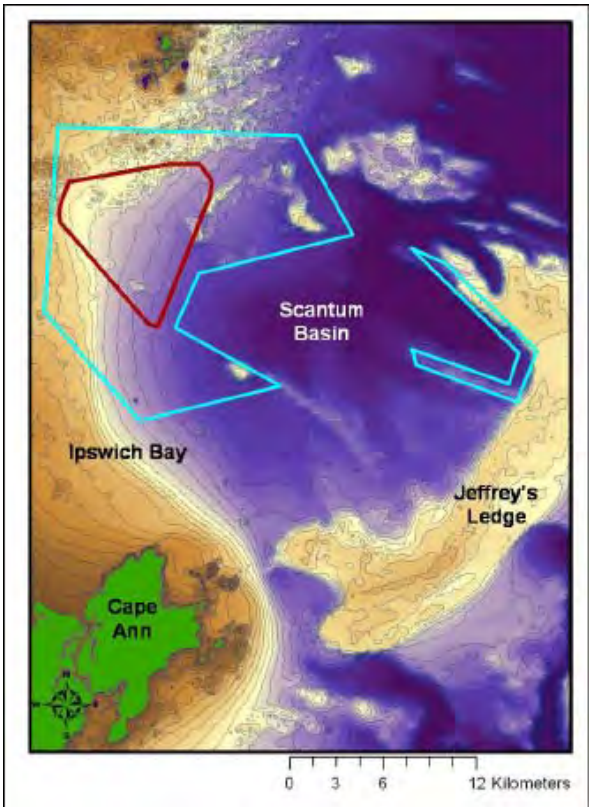



**Figure 48 – Volume contours of detections from cod acoustic tagging study (from Howell et al 2009)**

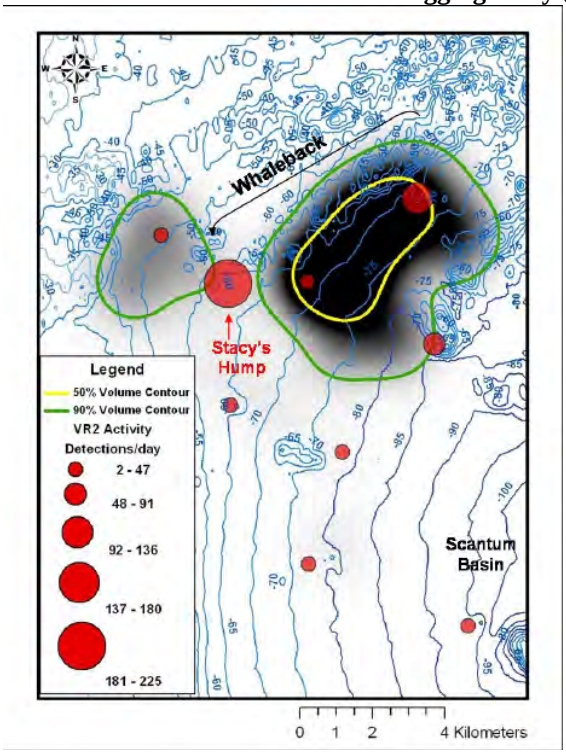


**Table 91 - Spawning periods for GOM regulated groundfish. (Source: Essential Fish Habitat source documents)**

spawning months

peak spawning months

| *Species* | *January* | *February* | *March* | *April* | *May* | *June* | *July* | *August* | *September* | *October* | *November* | *December* | *Notes* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| American Plaice,GM | | | | | | | | | | | | | Berrien and Sibunka 1999 |
| GOM Atlantic Cod | | | | | | | | | | | | | |
| Atlantic Halibut | | | | | | | | | | | | | Atlantic Canada waters |
| GOM Haddock | | | | | | | | | | | | | |
| Northern Ocean Pout | | | | | | | | | | | | | |
| Pollock | | | | | | | | | | | | | |
| Redfish | | | | | | | | | | | | | *copulation from Oct-Jan; fertilization from Feb-April; no peak times evident |
| GB-GOM White Hake | | | | | | | | | | | | | *no peak times evident |
| GB Windowpane | | | | | | | | | | | | | |
| GOM Winter Flounder | | | | | | | | | | | | | |
| GB-GOM Witch Flounder | | | | | | | | | | | | | |
| CC-GOM Yellowtail Flounder | | | | | | | | | | | | | |

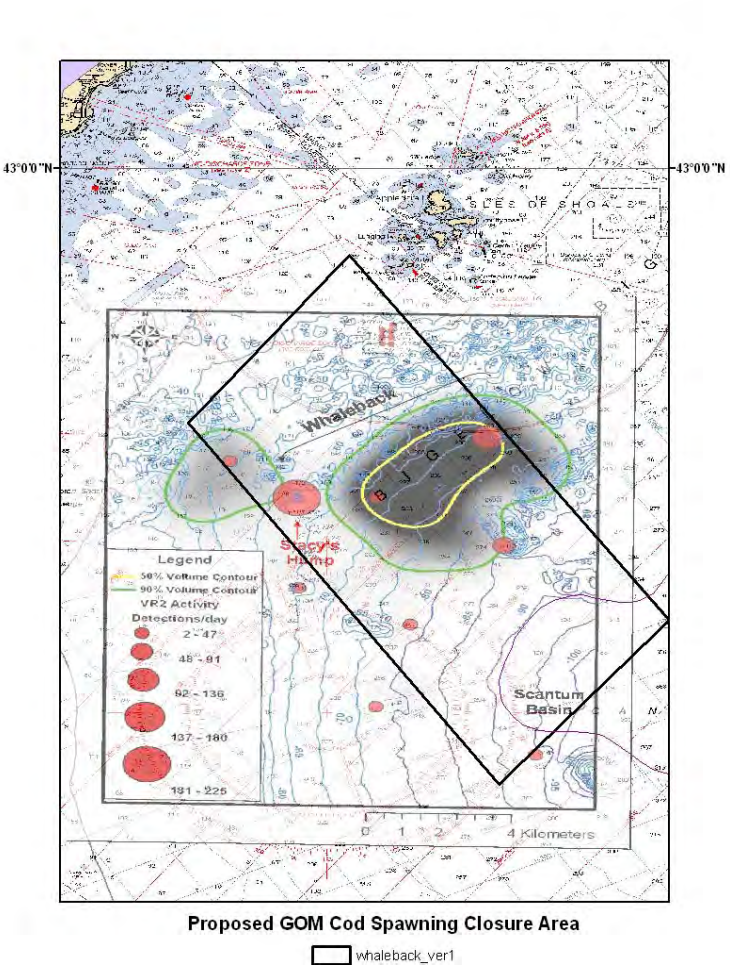
**Option 2: GOM Cod Spawning Protection Measures**

Under this option, vessels fishing in sectors would be prohibited from fishing in an area with aggregations of spawning cod during the month of June. Commonly referred to as the whaleback area, the proposed closure covers most of the area identified in Howell (2009) as an area with large concentrations of spawning cod (see Figure 49). As a result , when compared to the No Action alternative, this option provides additional protection to spawning cod.

This option considers two sub-options with respect to recreational vessels. In sub-option A, recreational vessels would be prohibited from fishing in the area from April through June. This would reduce a source of mortality on spawning cod and thus provide benefits superior to the No Action alternative.

Sub-option B would prohibit recreational vessels from possessing cod in this area from April through June. As a result it is less clear that there would be any benefits to cod. If recreational vessels fish in the area, and catch cod but discard it, some of those cod will not survive and the effectiveness of the measure would be weakened. This sub-option would return less benefit that sub-option A, but may provide marginally more protection than the No Action alternative.

**Figure 49 - Proposed closure area and volume contours of cod detections from Howell et al (2009). (Distortion caused by process of combining graphic with proposed closure area).**




### 7.1.3.3 Handgear Permit Management Measures

**Option 1: No Action**

The No Action regulations for Handgear A permits mandate a 300 lb. trip limit for these permits. The trip limit adjusts (higher or lower) proportional to the GOM cod trip limit for common pool DAS vessels. This includes any in-season adjustment to the GOM cod trip limits implemented by the Regional Administrator. In-season adjustments are based on whether catches need to be slowed or increased to achieve the common-pool ACL for GOM cod.

By tying the Handgear A trip limit to the total common pool catch, and adjusting trip limits as necessary, the No Action alternative increases the probability that GOM cod catch will be

constrained to the ACL. With this measure there is a greater likelihood that mortality targets for this stock will be met. At the same time, however, the adjustments are made without regard to the GB cod stock and the trip limit for Handgear A vessels fishing on that stock will not reflect whether catches are approaching that ACL. Handgear A permits only account for a small portion of the catch for both stocks, however, so it is likely that these effects are undetectable.

Similarly, the trip limit for Handgear B vessels begins at 75 lbs./trip and is adjusted proportional to the GOM cod trip limit for limited access vessels. With this measure there is a greater likelihood that mortality targets for this stock will be met. At the same time, however, the adjustments are made without regard to the GB cod stock and the trip limit for Handgear A vessels fishing on that stock will not reflect whether catches are approaching that ACL. Handgear B permits only account for a minute portion of the catch for both stocks, however, so it is likely that these effects are undetectable.

Under this option, vessels fishing with a handgear permit are not allowed to fish in the GOM rolling closures that are applicable to common pool vessels. This makes it unlikely that handgear vessels will interfere with spawning cod. This likely has little effect, however, as recreational vessels are allowed to fish for cod in many of these closures, and these vessels outnumber the handgear permitted vessels.

**Option 2: Rolling Closure Exemption for Handgear A Vessels**

Under this option vessels fishing under a Handgear A permit will be exempt from all rolling closures in the GOM and the seasonal closure on GB. They will not be exempt from the year-round areas closed to commercial groundfish fishing activity. This action is likely to increase catches of groundfish species by Handgear A vessels – in particular, the catches of GOM cod and possibly GB cod as well. When compared to the No Action alternative this option increases the risk that catches of these stocks may exceed the ACL and potentially lead to overfishing. Because of the small amount of catch that can be attributed to these vessels it is unlikely that the increased risk is detectable.

.Most Handgear A vessels fished in the common pool in FY 2010. Handgear A vessels have been subject to rolling closures in the GOM, and the seasonal GB closure, since these closures were implemented. The primary tools used to restrict catches by these vessels are the restriction to use handgear (which includes tub trawls of up to 250 hooks) and trip limits for cod catches. GOM and GB cod catches by Handgear A vessels in recent years are shown in Table 92. Catches in FY 2010 are expected to decline because of the adjustment of cod trip limits during the fishing year as the common pool ACL was approached. The low trip limits that resulted made fishing uneconomical for these vessels. This measure is designed to provide additional opportunities for Handgear A vessels before the trip limits are likely to change as a result of fishing by limited access vessels. The expectation is that when compared to No Action cod catches will increase, which may increase fishing mortality for groundfish stocks – particularly GOM and GB cod.

As limited access permits, handgear A vessels have a calculated PSC. This PSC effectively determines the amount of groundfish that this permit category brings to the common pool sub-ACL. If catches by Handgear A vessels exceed this amount then the risk that the overall ACL increases. The amount of GOM cod that these vessels will bring to the common pool in FY 2011 is approximately 14 percent of the total GOM cod common pool ACE, or 52,000 pounds live weight, based on preliminary sector rosters, or approximately 173 trips at 300 lbs./trip .Vessels with Handgear A permits caught more than this amount of GOM cod each year since fishing year

2006 without access to the rolling closure areas (see Table 92). While Handgear A vessel catches are a small part of total removals, as the number of limited access permits fish in sectors increases then the handgear A permits will reflect a larger percentage of the common pool fishery. While the catches by this fleet are currently small, the concept that each component of the fishery is responsible for its own catch argues that overages should be avoided if at all possible to increase the likelihood that mortality targets will be met.

**Table 92 – Handgear A permit landings (lbs., landed weight) of GOM and GB cod, FY 2006 – FY 2009 (Source: VTR database)**

| | | FY 2006 | FY 2007 | FY 2008 | F Y2009 |
|---|---|---|---|---|---|
| GOM | Handgear | 45,507 | 51,409 | 76,528 | 118,090 |
| | Longline | 18,055 | 14,056 | 5,759 | 17,262 |
| | Total | 63,562 | 65,465 | 82,287 | 135,352 |
| GB | Handgear | 9,421 | 6,769 | 11,333 | 8,108 |
| | Longline | | 100 | 1,714 | |
| | Total | 9,421 | 6,869 | 13,047 | 8,108 |

There is evidence that Handgear A vessel catches will increase if they are granted access to the rolling closure areas. These areas are actively fished by recreational vessels in April through June. Charter vessels in these areas successfully target cod with handgear during the closures. It is reasonable to expect that Handgear A vessels will also be successful.

There are measures in place that can be used by NMFS to help control catches by Handgear A vessels. For example, in FY 2011 NMFS can adjust trip limits if necessary to slow the catch of cod. Beginning in FY 2012, common pool vessels will be subject to a hard TAC AM and if the ACL is approached then fishing in the relevant stock area will be curtailed. If these tools are successfully applied, then the risk to mortality targets from this change may prove small.

If this option is adopted, handgear A vessels will be fishing in areas that are known to include cod spawning activity. Fishing by these vessels could adversely affect cod spawning by removing large spawning fish. Because of the small size of this fishery and the large number of recreational vessels that already fish in these areas, it is unlikely that the marginal increase of the impacts will be noticeable. Nevertheless, when compared to No Action, there is a possibility that there would be slight negative impacts on spawning activity.

**Option 3: Partial Rolling Closure Exemption for Handgear A Vessels**

This option authorizes Handgear A vessels to fish in some of the GOM rolling closures and the GB seasonal closed area. Similar to Option 2, it is likely to increase catches by these vessels when compared to the No Action alternative. Increases might be less for GOM stocks because the vessels will still be subject to some of the rolling closures. This option may also result in more impacts on spawning fish than under the No Action alternative, though the impacts will be less than those under Option 2. Because of the small size of this fishery and the large number of recreational vessels that already fish in these areas, it is unlikely that the marginal increase of the impacts will be noticeable.

**Option 4: Handgear A Trip Limit Modification**

This option makes it clear that the cod trip limit for Handgear A permits is adjusted by stock area, based on changes to the relevant trip limit for limited access DAS vessels fishing in the common pool. In other words, the Handgear A limit for GOM cod changes when the GOM cod trip limit

for DAS vessels is changed, and the limit for GB cod changes when the GB cod trip limit for DAS vessels is changed. When compared to No Action, this increases the likelihood that trip limit adjustments are made at the right time to reduce the possibility that ACLs for GOM and GB cod will be exceeded. This should increase the chances of achieving mortality targets. Because the cod catches by Handgear A vessels have been a small part of the total catches for these stocks, it is not likely that this change will make a noticeable difference.

**Option 5: Handgear B Trip Limit Modification**

This option makes it clear that the cod trip limit for Handgear B permits is adjusted by stock area, based on changes to the relevant trip limit for limited access DAS vessels fishing in the common pool. In other words, the Handgear B limit for GOM cod changes when the GOM cod trip limit for DAS vessels is changed, and the limit for GB cod changes when the GB cod trip limit for DAS vessels is changed. When compared to No Action, this increases the likelihood that trip limit adjustments are made at the right time to reduce the possibility that ACLs for GOM and GB cod will be exceeded. This should increase the chances of achieving mortality targets. Because the cod catches by Handgear B vessels have been a small part of the total catches for these stocks, it is not likely that this change will make a noticeable difference.

## *7.2 Impacts to EFH*

### 7.2.1 Updates to Status Determination Criteria, Formal Rebuilding Programs, and Annual Catch Limits

If adopted, the alternatives outlined in this section of the Framework would result in changes to the target catches for various managed species. In some cases, targets would increase, while in other cases, they would decrease. In general, increased catch targets could result in increased fishing time and thus increased area swept to achieve those targets, and therefore would result in increased impacts to the seabed and associated EFH. Similarly, decreased catch targets could result in decreased fishing time, area swept, and impacts to the seabed and EFH. However, this is a gross oversimplification because the particular array of catch targets across the various managed species/stocks will influence fishing behavior of the fleet. For example, depending on the catch targets and availability of quota, the choice of fishing location may vary, and this would influence impacts to EFH because not all habitats are equally susceptible to damage from fishing gear. In addition, appropriate catch targets and quotas may alleviate some bycatch concerns, such that fishermen can harvest quotas more efficiently with associated reductions in EFH impacts.

#### 7.2.1.1 Revised Status Determination Criteria for Pollock

The no action option for this alternative would retain the current status determination criteria for pollock, while option 2 would revise the criteria according to the findings of the most recent assessment. The result would be an increase in MSY. While associated ACLs are set via a separate alternative (see section 7.2.1.3 below), adjusting the status determination criteria allows for a substantial increase in the ACLs for pollock. Thus option 2 would be expected to result in an increase in bottom contact time and thus an increase in impacts to EFH.

#### 7.2.1.2 Revised GB Yellowtail Flounder Rebuilding Mortality Targets

The no action option for this alternative would retain the current rebuilding target of 2014 with a 75% probability of success. Option 2 and the associated sub-options would extend the rebuilding period to either 2016 (sub-options A-C) or to 2019 (sub-option D) with a probability of success of 50%, 60%, or 75% for Options A, B/D, and C, respectively. While associated ACLs and US/Canada TACs are set via separate alternatives (see sections 7.2.1.3 and 4.1.4), the various sub-options would allow for higher/lower catches in the short-term, which would be expected to result in an increase/decrease in bottom contact time and thus an increase/decrease in impacts to EFH. Specifically, Option A results in similar ABCs/ACLs; options B and C result in lower ABCs/ACLs, and option D results in higher ABCs/ACLs.

#### 7.2.1.3 Annual Catch Limit Specifications

The no action option for this alternative maintains the specifications established via Framework 44. Depending on the stock, Option 2 results in higher or lower ABCs and ACLs in comparison with no action. Again, higher ABCs and ACLs would be expected to result in increased fishing time, bottom contact, and associated EFH impacts, while lower ABCs and ACLs would be

expected to reduce fishing time, bottom contact, and EFH impacts. As compared to no action, Option 2 results in lower ABCs and ACLs for the following stocks: GB cod, GB haddock, GB yellowtail with rebuilding options B and C. Higher ABCs and ACLs result for GB yellowtail with rebuilding option D, and for pollock. For GB yellowtail rebuilding option A and for white hake, there is little to no change in ABCs and ACLs as compared to no action.

#### 7.2.1.4 U.S./Canada Resource Sharing Understanding TACs

The no action option for this alternative results in no TACs being adopted for Eastern GB cod, Eastern GB haddock, and GB yellowtail. While this would likely reduce fishing and thus EFH impacts, it would also preclude any and all landings of fish from these stocks during 2011. Option 2 adopts the TMGC recommendations for the three stocks for 2011; in all cases the 2011 TACs are lower than the 2010 TACs, which would presumably reduce effort, bottom contact time, and EFH impacts as compared to limits currently in place.

#### 7.2.1.5 Yellowtail Flounder Allocations for the Scallop Fishery

**Option 1: No Action**

*To be completed*

**Option 2: Revised Allocations**

*To be completed*

### 7.2.2 Fishery Program Administration

The alternatives in this section would modify administrative aspects of the fishery but would not be expected to influence the total magnitude of catches, and therefore would not be expected to have impacts on EFH that differ from the status quo. Each alternative is briefly described below.

#### 7.2.2.1 Implementation of Additional Sectors

Option 2 for this alternative would implement new sectors beginning in May 2011. Many of these are permit banks or comprised of inactive members. It is possible that new sectors would influence the distribution of fishing effort somewhat, which could result in different impacts to EFH as habitats are differentially vulnerable, spatially, but these changes are likely to be minimal, and furthermore, would be very difficult to evaluate.

#### 7.2.2.2 Monitoring Requirements for Handgear A and Handgear B Permitted Vessels and Small Vessel Exemption Vessels

Option 2 for this alternative would exempt Handgear A and B vessels, as well as those holding a Small Vessel Exemption permit, from dockside monitoring requirements. Option 2 is not expected to have additional impacts to EFH as compared to no action.

#### 7.2.2.3 Monitoring Requirements for Commercial Groundfish Fishing Vessels

The options for this alternative would eliminate dockside monitoring (Option 2), delay industry funding requirements for at-sea monitoring (Option 3), and implement a trip-end hail requirement, if dockside monitoring is eliminated (Option 4). Because these are unlikely to influence catches, Options 2, 3, and 4 are not expected to have additional impacts to EFH as compared to no action.

#### 7.2.2.4 Distribution of PSC from Canceled Permits

Option 2 for this alternative would redistribute PSC from canceled permits across all segments of the fishery, rather than just into the common pool. Option 2 could have a small effect on the magnitude and distribution of catches if permits are canceled during 2011, with a greater effect if more permits are canceled. In 2012, both sectors and the common pool will be managed by hard TACs, so the magnitude of catches will not change even if the distribution of catches changes. Any additional impacts to EFH as compared to the status quo are expected to be minimal.

#### 7.2.2.5 Submission of Sector Rosters

Option 2 for this alternative would change the submission date for sector rosters from September 1 to December 1 to allow more flexibility for sector participants. Option 2 is not expected to have additional impacts to EFH as compared to no action.

### 7.2.3 Commercial and Recreational Fishery Measures

The following alternatives influence fishery operations and thus the location and timing of catches, which could have an additional impact on EFH as compared to the status quo, depending on the alternative. Each measure is discussed separately below.

#### 7.2.3.1 General Category Scallop Dredge Exemption – Modification of Restrictions

Option 2 for this alternative would eliminate the prohibition on general category scallop fishing in two spawning closures in the Great South Channel during April 1-June 30 (Great South Channel SNE/GB yellowtail flounder peak spawning closure) and June 1-June 30 (Great South Channel CC/GOM yellowtail flounder peak spawning closure). The rationale for implementing this option is two-fold: first, it is not clear that scallop dredging has a significant impact on yellowtail flounder spawning or spawning habitat, and second, the general category scallop fishery is now managed by a quota system, such that the total landings from that segment of the scallop fishery are capped. It follows from this that impacts to EFH are also limited, although changes in EFH impacts from the status quo will depend on the location of fishing as EFH in different locations is not all equally vulnerable.

*To be completed when catch information available*

#### 7.2.3.2 Gulf of Maine Cod Spawning Protection Area

Option 2 for this alternative would implement an area in the GOM that is closed to gear capable of catching groundfish between June 1-30 (commercial gear), or April-June (recreational gear, sub-option A). Sub-option B would allow recreational fishing during April-June, but would prohibit retention of cod. The purpose of this option and associated sub-options is to generate additional protection for spawning cod. This option would redistribute fishing effort that would normally occur in this location during this time into other areas, some of which would likely have lower densities of cod and thus lower catch rates of cod. In general, fishing with lower catch rates is expected to increase bottom contact time and area swept, and thus to increase impacts to EFH. However, the proposed area is small relative to the footprint of the fishery, and therefore any increased impacts to EFH as a result of this alternative are expected to be minimal.

#### 7.2.3.3 Handgear A Trip Limits

Options 2 through 5 for this alternative adjust either the rolling closure exemptions for handgear A or B vessels. While these alternatives would likely influence the magnitude and location of catches, handgear (hook and line) operation does not have an adverse effect on EFH (Morgan and Chuenpagdee 2003), such that the implementation of any of the options would not result in different impacts to EFH as compared to the status quo.

### 7.2.4 Summary of EFH Impacts

EFH impacts of the various alternatives are summarized below (Table 93).

**Table 93 - Summary of EFH impacts for Framework 45 alternatives (does not include those considered but rejected).**

| ***Measure*** | ***Summary*** | ***Increase/decrease/little or no change in impacts to EFH*** |
|---|---|---|
| Revised status determination criteria for pollock | Would likely lead to an increase in catch limits | Possible increase |
| Revised GB YTF rebuilding targets | Could lead to higher or lower catches in the short term, depending on the option selected | Might increase, decrease, or experience little change, depending on option selected |
| ACL specifications | Could lead to higher or lower catches in the short term, depending on the species | Might increase, decrease, or experience little change, depending on the species |
| US/Canada TACs | Would lead to a decrease in catches in comparison with 2010 | Possible decrease |
| Additional sectors | Administrative measure | Little or no change expected |
| Handgear A/B monitioring changes | Administrative measure | Little or no change expected |
| Commercial vessel monitoring changes | Administrative measure | Little or no change expected |
| Distribution of PSC from canceled permit | Administrative measure; could influence magnitude and location of catches | Likely minimal impacts to EFH, if any |
| Submission of sector rosters | Administrative measure | Little or no change expected |
| Removal of General Category scallop dredge exemption area | Could increase general category effort in GSC | Possible increase in impacts due to increased fishing on vulnerable habitats |
| Implementation of GOM cod spawning protection area | Could redistribute fishing effort during closures months | Little to no change expected due to small size of area |
| Change to Handgear A trip limits | Could influence magnitude and location of catches | Little to no change expected, as handgear has little to no impacts on seabed habitats |

Changes to EFH impacts as a result of this action are expected to be minimal in most cases. Where increased impacts are likely in comparison with no action, they typically result from shifts towards more biologically appropriate catch targets (e.g. the change in pollock status determination criteria) or measures to protect the target stock (i.e. the proposed whaleback spawning closure). In some areas, there may be declines in fishing effort due to revised specifications as compared to no action/2010 TACs, which would result in reduced habitat impacts. In summary, in the context of the overall declines in fishing effort since the baseline EFH review completed for Amendment 13, adverse effects to EFH will continue to be minimized by the FMP following implementation of this action.

## *7.3 Impacts on Endangered and Other Protected Species*

### 7.3.1 Updates to Status Determination Criteria, Formal Rebuilding Programs, and Annual Catch Limits

#### 7.3.1.1 Revised Status Determination Criteria for Pollock

**Option 1: No Action**

Under this option the formal rebuilding program first adopted in Amendment 16 would need to be continued, and catches would be held at a low level to rebuild the stock. The impacts of the fishery to protected species may not change as a result of the continuation of the rebuilding plan, however this option would be inconsistent with the requirements of the M-S Act, specifically National Standard 2.

**Option 2: Revised Status Determination Criteria for Pollock**

This option uses the best available science and as a result is consistent with the M-S Act and National Standard 2. It would allow catches to increase above recent levels and well above the catches proposed in FW 44, using the recommendations of the SAW 50 (NEFSC 2010).

Compared to the No Action alternative, the increase in catch is likely to adversely effect, but not jeopardize, the protected species present in the areas in which catch will increase. An increase in fishing effort is likely to occur to increase the catch, and as a result, a potential increase in incidents of bycatch of protected species may also occur, as well as a decrease in the amount of forage available. It is not clear, however, if the circumstances created by the measure will result in these adverse effects on protected species or where the effort is likely to occur. This option also implements the use of an analytic assessment, which should lead to a better understanding of the resource and a more accurate determination of sustainable catch levels. It may also lead to better analysis of where effort will occur in the future and therefore improve the ability to predict impacts to protected species.

#### 7.3.1.2 Revised GB Yellowtail Flounder Rebuilding Mortality Targets

**Option 1: No Action**

This option would rebuild this stock more quickly than the other options under consideration by targeting rebuilding by 2014 with a 75 percent probability of success. The 2010 assessment of this stock (TRAC 2010) indicated that a fishing mortality of F=0 would need to be adopted to achieve this goal (although the assessment noted that goal could not be achieved even under this fishing mortality). A fishing mortality of F=0 would mean all fishing would cease, and would likely result in a benefit for protected species by reducing any potential interaction with groundfish fishing gear in all areas at all times.

**Option 2 – Revised Rebuilding Target for GB Yellowtail Flounder**

Four alternative rebuilding strategies are being considered for this measure, all of which target a rebuilding at a slower pace than under the No Action alternative. The four options under consideration are:

> Sub-option A: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 50 percent probability of success
> Sub-Option B: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 60 percent probability of success
> Sub-Option C: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 75 percent probability of success
> Sub-Option D: Use a fishing mortality target that is calculated to rebuild the stock by 2019 with a 60 percent probability of success

The first three sub-options extend the rebuilding period to 2016, each considering a different probabilities of success. Sub-option D extends the rebuilding period until 2019, and targets a probability of success of 60 percent. All impacts discussed below would be expect to last as long as the rebuilding period, barring other changes to the FMP or specifications.

Compared to the No Action alternative, all four sub-options would possibly result in more effort exerted by the fishery; all four sub-options may therefore result in more possible gear interactions for protected species, such as harbor, hooded and harp seals. The highest target fishing mortality rate was estimated for sub-option D, and would likely result in the most fishing effort. Although not directly correlated, the greater the fishing effort, the more interactions with protected species may occur. By that same logic, sub-option A has less probability of gear interaction with protected species than sub-option D but more probability than sub-options B and C, as it has the second highest target fishing mortality rate. Sub-option B has even less probability than A and D, but sub-option C has the lowest target fishing mortality rate, and therefore the least probability of gear interaction with protected species of the four. Effort in the fishy may or may not result in area shifts; it is unclear how fishermen may react to the target mortality rates. Overall it is important to note that the differences in impact on protected species between the sub-options are likely to be minor, and the target fishing mortality values may change in future years if stock conditions differ from the projection results. In all cases the impact to protected species is likely to be negative but inconsequential. The uncertainty in the location and amount of effort exerted by the fishery, however, makes it difficult to calculate the amount of impact that the four sub-options may have on protected species, from impacts such as forage availability to encounters with fishing vessels.

#### 7.3.1.3 Annual Catch Limit Specifications

**Option 1: No Action**

This No Action option does not modify the OFLs/ABCs/ACLs for GB cod, GB haddock, GB yellowtail flounder, white hake, and pollock that were adopted by FW 44 (NEFMC 2010). All of the elements of the ACLs would remain the same, such as the allocations of GB and SNE/MA yellowtail flounder to the scallop fishery that were adopted in that same action.

No major protected species impacts would be expected to occur as a result of the No Action option. As such, the provision should not result in impacts beyond those analyzed and discussed in FW 44 (NEFMC 2010). As summarized from FW 44 (NEFMC 2010) the specification of ACLs was not expected to have direct impacts on protected species, and was consistent with the fishing mortality targets adopted by Amendment 16.

**Option 2: Revised Annual Catch Limits for Modified Stocks**

This option proposes to adopt new specifications and ACLs for FY 2011 -2012 for GB cod, GB haddock, GB yellowtail flounder, white hake, and pollock. This measure includes the identification of ACLs, OFLs, and ABCs as required by the M-S Act and as implemented by Amendment 16. It also incorporates adoption of the incidental catch TACs for the special management programs that use Category B DAS. Implementation of ACLs is required by the Magnuson-Stevens Act and may have social impacts that are difficult to define. The social impacts of ACL-setting in general are discussed in detail in Amendment 16.

As was mentioned in the analysis of the previous options, the greater the fishing effort, the more possibility that interactions with protected species may occur. The TACs, and therefore the total ABC for GB Cod and GB Haddock for Option 2 do not differ from that for the No Action alternative. As a result, the impacts of the TACs to protected species under this option are not expected to differ from that described under the No Action alternative. The reduced cod TAC for the U.S./Canada area may result in a shift of available catch from the eastern area to the western area. The quantitative consequences of these changes are unknown, but could be positive if effort is reduced in seasonal high use areas and the reduction overlaps with the distribution of protected resources.

Each of the five sub-options for GB yellowtail flounder results from a specific rebuilding strategy that is being considered in section 4.1.2; the four sub-options A-D, and the No Action rebuilding strategy. The revised OFLs/ABCs/ACLs include sub-options A and D which would result in higher catches than the No Action alternative, and sub-options B and C which would result in lower catches than the No Action alternative. Using the same logic as above, sub-options A and D would result in greater potential impacts to protected species through fishery interaction, while sub-options B and C would create potential positive impacts by limiting potential interactions, compared to the No Action alternative. Similarly, the revised OFLs/ABCs/ACLs for pollock would result in increased catches, which could result in increases in interaction of protected species with the fishery, such as the hooded and harp seals, which have an increased potential of interaction during the winter.

It is important to note that all of the options and sub-options which could cause increases or decrease in interactions with the fishery the overall impact to protected species are likely to be negligible, and the impacts are uncertain as quantitative analysis has not been performed. Catches in the fishery will still be constrained by other limitations placed on the fishery, such as those relating to the catch of other co-managed species and bycatch, thereby mitigating the impacts of the potential changes.

### 7.3.1.4 U.S./Canada Resource Sharing Understanding TACs

**Option 1: No Action**

Under this option no TACs would be implemented for GB cod, GB haddock, and GB yellowtail in the U.S./Canada area for FY 2011 in opposition to the recommendation of the TMGC. The impact to protected species may be positive, as there would be less effort in the area, which would reduce the likelihood of fishery encounter with protected species. The action would also lengthen the rebuilding time of the stock, however, which could decrease the amount of forage available for protected species. Overall, the impacts are expected to be negligible.

**Option 2: U.S./Canada TACs**

This option would adopt the TMGC recommendations for GB cod, GB haddock, and GB yellowtail in the U.S./Canada area for FY 2011. The recommendations lower the TACs from the FY 2010, but maintain the rebuilding schedule, and so potential forage may increase while the probability of fishery encounters with protected species may decrease. In comparison to the No Action alternative, however, the TACs would increase, as none would be implemented under No Action. The impacts to protected species would therefore be the inverse of the No Action alternative; potential fishery interaction may increase slightly, but the rebuilding schedule would be faster, and forage species may be more readily available. Change in the location of fishing effort as a result of the action is unknown. The impacts are uncertain and unquantifiable at this time, but they are expected to be negligible as a result of this action.

It is difficult to evaluate the effect of a zero allocation of trips in the Closed Area II SAP because, there would still be fishing effort allowed in CA II under the expanded access allowed for haddock (August 1 through January 31). Compared to fishing years prior to FY 2010, there is likely to be an increase in fishing effort in the Eastern U.S./Canada Area due to the opportunity to fish in CA II, which had not been accessible to the groundfish fishery since 2004. An increase in effort would have limited effect on ESA-listed cetaceans given the measures that are already in place under the ALWTRP for the use of gear in the groundfish fishery, and would have limited effect on ESA-listed sea turtles given their distribution and abundance on Georges Bank.

Delay of the use of trawl gear in the U.S./Canada Management Area until August 1, 2011 would be of benefit to those protected species, such as small cetaceans, that occur in the management area and can be captured in trawl gear. A delay in the use of trawl gear would not change the effects to large cetaceans given that these species are not captured in trawl gear. The delay would also not change the effects to sea turtles given the relatively low abundance and distribution of sea turtles in the U.S./Canada Management Area.

### 7.3.1.5 Yellowtail Flounder Allocations for the Scallop Fishery

**Option 1: No Action**

*To be completed*

**Option 2: Revised Allocations**

*To be completed*

### 7.3.2 Fishery Program Administration

#### 7.3.2.1 Implementation of Additional Sectors

**Option 1 – No Action**

Under this action the nineteen operating sectors authorized under Amendment 16 would remain the sole operators. This action is not expected to have an impact on protected species as it maintains the status quo and is administrative in nature.

**Option 2 – Implement New Sectors for FY 2011**

This option would authorize seven new sectors for the FY 2011: the State of Maine Permit Banking Sector, the State of Rhode Island Permit Bank, the State of New Hampshire Permit Bank Sector, the State of Massachusetts Permit Bank Sector, the Northeast Fisheries Sector XIV, the Sustainable Harvest Sector II, and the Sustainable Harvest Sector III. All but two of the sectors under consideration in this option would be either permit banks or inactive members with the primary function of transferring ACE. As a result, this action is unlikely to have protected species impact, as it is mainly procedural in nature. The two sectors which would have active members may change fishing behavior, but the changes are very difficult to predict, compared to the No Action option. As such, the provision should not result in impacts beyond those analyzed and discussed in the Amendment 16.

#### 7.3.2.2 Monitoring Requirements for Handgear A and Handgear B Permitted Vessels and Small Vessel Exemption Vessels

**Option 1 – No Action**

The requirements for dockside monitoring that were adopted in Amendment 16 would not change under this option. The measures adopted in Amendment 16 required sectors to comply with dockside monitoring beginning in FY 2010, and would require that all common pool vessels also be subject to dockside monitoring beginning in FY 2012, when the hard TAC AM is implemented for the common pool. The required level of coverage beginning in FY 2011 is for 20 percent of trips to be monitored. Although the accuracy of landing information may improve as a result of this option, it would not help protected species, as protected species are illegal to bring to the dock and therefore would not be monitored better. There are therefore expected to be no impacts as a result of this option.

**Option 2: Dockside Monitoring Exemption for Handgear A and Handgear B Permits and Small Vessel Exemption Permits**

This option removes the requirement that Handgear A, Handgear B, and Small Vessel Exemption vessels fishing in the common pool have 20 percent of their trips monitored by dockside monitors beginning in FY 2012. The requirement would remain for Handgear A and Small Vessel

Exemption Vessels that fish in sectors (Handgear B vessels are not eligible to join sectors). It is unlikely that this option would have any impact to protected species; as was discussed in the No Action option, protected species will not benefit from dockside monitoring, and so this option will not affect protected species.

#### 7.3.2.3 Monitoring Requirements for Commercial Groundfish Fishing Vessels

**Option 1: No Action**

Under the No Action option, the monitoring requirements adopted by Amendment 16 for commercial groundfish fishing vessels would continue. This includes both at-sea monitoring at a level sufficient to meet requirements and dockside monitoring of 20 percent of trips. 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. Monitoring requirements stand to positively impact protected species by providing more information about them, however this option would not change coverage levels and so would have no impact.

**Option 2: Removal of Dockside Monitoring Requirements**

This option removes the requirement for dockside monitoring of 20 percent of commercial groundfish trips (for sector vessels beginning in FY 2011 and for all other vessels beginning in FY 2012). As was discussed in earlier sections, dockside monitoring does not affect protected species; this option is therefore not expected to have impacts on protected species.

**Option 3: Removal of Requirement for Industry Funding of Monitoring for FY 2012**

This option removes the requirement for industry funding of at-sea monitoring in FY 2012. At-sea monitoring is essential to provide accurate information on discards, particularly in regards to protected species, which cannot be landed. Without this information there will be more uncertainty on fishing mortality estimates and as a result a greater likelihood that the assessment of the stocks will be wrong.

The impacts of this option are unclear because the funding options for monitoring, absent industry funding, are unclear. The federal government may provide the funding necessary for an adequate at-sea monitoring program that achieves the standards required by NMFS, including the SBRM CV standard specified as a minimum by the Council. If this occurs, then there would be no difference between this option and the No Action alternative for protected species, as the SBRM coverage levels would be maintained. If the federal government were to provide a lower level of funding than that required to meet monitoring standards, then protected species may be adversely affected. The option would not jeopardize any species, however, as nothing will directly affect them. At the time of this writing, however, the level of funding, and therefore the level of coverage, are uncertain, and so the impacts of this option cannot be fully evaluated.

**Option 4: Trip-end Hail Requirement**

This option would require commercial vessels to still provide a trip-end hail, despite the elimination of dockside monitoring requirements. This is an administrative option and will not impact protected species.

### 7.3.2.4 Distribution of PSC from Canceled Permits

**Option 1: No Action**

Under the No Action alternative, when a limited access permit that is eligible for a sector is canceled, the PSC associated with that permit is assigned to the common pool. Impacts to protected species are expected to be negligible; although some PSC may move from one sector to the common pool, the fishing effort and distribution likely will not change as a result of the option.

**Option 2: Even Redistribution Among All Remaining Permits**

Unlike the No Action alternative, in this option if a permit is cancelled the associated PSC is redistributed proportionally to all other permit holders. The end result is that with a small number of cancelled permits there is a marginal increase in the PSC associated with all permits. The overall amount of PSC, which affects the overall amount of fishing effort that may interact with protected species, does not change as a result of this option. The availability of forage and the location of the fishing effort are also not expected to change. Neither this option nor the No Action option is expected to have an impact on protected species.

### 7.3.2.5 Submission of Sector Rosters

**Option 1: No Action**

Under this option, there would be no changes to current requirements, adopted in Amendment 16, that sectors must submit final sector rosters to NMFS by September 1 for the next fishing year. This option would have no impact on protected species, as it maintains the status quo.

**Option 2: Revised Submission Date**

This option would require sectors to submit final sector rosters to NMFS by December 1 in order to operate on May 1 of the following fishing year. Due to the administrative nature of this option, it is not expected to have impacts on protected species.

### 7.3.3 Commercial and Recreational Fishery Measures

#### 7.3.3.1 General Category Scallop Dredge Exemption – Modification of Restrictions

**Option 1: No Action**

The No Action option maintains two seasonal closures in the Great South Channel Scallop Exemption Area that are designed to protect spawning yellowtail flounder. This option would have no impact on protected species, as it maintains the status quo.

**Option 2: Exemption from Yellowtail Flounder Spawning Closure**

This option eliminates the two spawning area closures, which occur during April 1-June 30 (Great South Channel SNE/GB yellowtail flounder peak spawning closure) and June 1-June 30 (Great South Channel CC/GOM yellowtail flounder peak spawning closure). The closures are designed to reduce the interference of General Category scallop fishing with spawning yellowtail flounder. As noted in the description of the No Action alternative, the spawning closures may provide some unquantified benefit to protecting yellowtail flounder. Removing the closures under this option will provide less protection to spawning fish than the No Action alternative. In turn, this may reduce the amount of forage available for protected species. These impacts would be marginal, however, since the closures do not apply to groundfish fishing vessels (some that may be targeting yellowtail flounder) or limited access scallop dredge trips.

Current management measures limit the groundfish fishery and the General Category fishery, and any catches of scallops that occur in April – June are catches that will not take place at other times if the year. In some cases, a shifting of scallop effort into these months might reduce overall bycatch since bycatch rates are higher during later months of the year. This would potentially benefit protected species by providing more forage base. The shift of effort into the area could increase the probability of protected species interacting with the fishery's gear, however, but the impact would be likely be limited to sea turtles. Sea turtles are more prevalent within the operations area during the spring and summer, and therefore would have a higher potential for interaction with groundfish vessels during these seasons.

Some sense of the amount of GC effort, and therefore potential of impact to sea turtles, that can be expected can be assumed by behavior in 2005 and 2006, before the closures were adopted. In these years, about XX percent of the total GC catch was taken from SA 521 and 526 between April and June. The EA for the original action which implemented these measures (2006), however, summarized the impacts of the scallop dredge gear in the then-proposed areas as minimal for sea turtles and any other protected species. At the time of the EA, only one single sea turtle had been documented as bycatch anywhere on GB, even with considerable observer coverage. It would therefore be reasonable to expect that the re-opening of these areas would have minimal impact on sea turtles. Overall, protected species, mainly turtles, may be somewhat adversely affected by these measures. The impact is not expected to jeopardize any of the species, however.

### 7.3.3.2 Gulf of Maine Cod Spawning Protection Area

**Option 1: No Action**

The No Action alternative maintains current management measures in the inshore GOM for commercial and recreational vessels. The commercial management measures differ for vessels in the common pool and vessels in sectors. Vessels in the common pool are not allowed to fish in the inshore area during April, May, and June because of the existing rolling closures. Vessels in sectors are allowed to fish in the rolling closures during June and can request other exemptions from the rolling closures (none have been granted to date). These measures are not intended to protect spawning fish, but to reduce mortality to the stock; however, some beneficial spawning protection is provided, which may be maintaining forage availability. As this option would maintain the status quo, however, it is not expected to have impacts on any protected species.

**Option 2: GOM Cod Spawning Protection Measures**

Under this option, vessels fishing in sectors would be prohibited from fishing in an area with aggregations of spawning cod during the month of June, commonly referred to as the whaleback area. This option considers two sub-options with respect to recreational vessels: sub-option A, would prohibit recreational vessels from fishing in the area from April through June; sub-option B would prohibit recreational vessels from possessing cod in this area from April through June.

Overall when compared to the No Action option, this option may positively affect protected species by providing additional protection to spawning cod, thereby increasing the amount of forage available. It may also limit potential interaction with gear in the fishery, which could reduce harm and mortality to protected species such as large cetaceans and sea turtles, which are more abundant in the summer or harbor and gray seals, which are year-round residents. More specifically, sub-option A may provide more protection from gear interactions and forage availability. Sub-option B, however, only limits the possession of cod, and so the benefits to protected species may be limited, if at all, when compared to the No Action option.

### 7.3.3.3 Handgear Permit Management Measures

**Option 1: No Action**

Under this option, no changes will be made to the regulations for vessels fishing with a Handgear A or Handgear B permit vessels. Vessels fishing with Handgear A permits and not in a sector would continue to be subject to all rolling closures that apply to common pool vessels.
This measure would maintain status quo, and therefore protected species are not liable to experience adverse or jeopardizing effects.

**Option 2: Rolling Closure Exemption for Handgear A Vessels**

Under this option, Handgear A vessels would be exempt from all GOM rolling closures implemented by Amendment 13. Access to future closed areas (such as the GOM cod spawning protection area in 4.3.2) will be determined when the closed areas are adopted.

This option will likely shift fishing effort and effort magnitude into locals and amounts that could potentially be detrimental to protected species. The Northeast/Mid-Atlantic bottom longline/hook-and-line fishery is listed as a Tier 2 Category III fishery in the LOF (2010), however in recent years marine mammal species and stocks incidentally killed or injured by those gears have been documented as 0. Similarly, right whale critical habitat does fall in some of the effected areas, however hook gear has not been implicated in entanglements. This option is therefore not expected to affect protected species, as the trend is not expected to change as a result of the option.

**Option 3: Partial Rolling Closure Exemption for Handgear A Vessels**

Under this option, Handgear A vessels would be exempt from the same GOM rolling closures as sector vessels are under the universal exemption. Access to future closed areas (such as the GOM cod spawning protection area in 4.3.2) will be determined when the closed areas are adopted.

This option will likely shift fishing effort and effort magnitude into locals and amounts that could potentially be detrimental to protected species. The Northeast/Mid-Atlantic bottom longline/hook-and-line fishery is listed as a Tier 2 Category III fishery in the LOF (2010), however in recent years marine mammal species and stocks incidentally killed or injured by those gears have been documented as 0. Similarly, right whale critical habitat does fall in some of the effected areas, however hook gear has not been implicated in entanglements. This option is therefore not expected to affect protected species, as the trend is not expected to change as a result of the option.

**Option 4: Handgear A Trip Limit Modification**

Under this option the cod trip limit for vessels fishing under a Handgear A permit will adjust proportionally to the cod trip limit for cod in the relevant stock area that applies to limited access DAS vessels fishing in the common pool. The baseline Handgear A trip limit is 300 lbs./trip, limited to one trip per day. The baseline cod trip limit for limited access vessels fishing in the GOM is that adopted by FW 44 (800 lbs./DAS). For limited access vessels fishing in the GB stock area, the baseline cod trip limit is as adopted in Amendment 13 (2,000 lbs/DAS). As an example, under this measure if the GOM cod trip limit is reduced by 50 percent for limited access vessels, the Handgear A trip limit is reduced by 50 percent for vessels fishing in the GOM, but no change is made to the trip limit for Handgear A vessels fishing on GB.

This option is likely to affect trip limits for Handgear A vessels, which as a general rule can affect protected species by changing fishing effort. The Northeast/Mid-Atlantic bottom longline/hook-and-line fishery is listed as a Tier 2 Category III fishery in the LOF (2010), however, in recent years, marine mammal species and stocks incidentally killed or injured by those gears have been documented as 0. Similarly, right whale critical habitat does fall in some of the affected areas, but hook gear has not been implicated in entanglements. This option is therefore not expected to affect protected species even if it leads to a change in trip limits, as the trend is not expected to change as a result of the option.

**Option 5: Handgear B Trip Limit Modification**

Under this option the cod trip limit for vessels fishing under a Handgear B will adjust proportionally to the cod trip limit for cod in the relevant stock area that applies to limited access DAS vessels fishing in the common pool. The baseline Handgear A trip limit is 75 lbs./trip, limited to one trip per day. The baseline cod trip limit for limited access vessels fishing in the GOM is that adopted by FW 44 (800 lbs./DAS). For limited access vessels fishing in the GB stock area, the baseline cod trip limit is as adopted in Amendment 13 (2,000 lbs/DAS). As an example, under this measure if the GOM cod trip limit is reduced by 50 percent for limited access vessels, the Handgear B trip limit is reduced by 50 percent for vessels fishing in the GOM, but no change is made to the trip limit for Handgear A vessels fishing on GB.

The protected resources impacts of this option are likely to be similar to that of Option 4 (that is, no impact). It is likely to affect trip limits for Handgear B vessels, which generally can affect protected species by changing fishing effort. The Northeast/Mid-Atlantic bottom longline/hook-and-line fishery is listed as a Tier 2 Category III fishery in the LOF (2010), however, in recent years, marine mammal species and stocks incidentally killed or injured by those gears have been documented as 0. Similarly, right whale critical habitat does fall in some of the affected areas, but hook gear has not been implicated in entanglements. This option is therefore not expected to affect protected species even if it leads to a change in trip limits, as the trend is not expected to change as a result of the option.

## *7.4 Economic Impacts*

### 7.4.1 Updates to Status Determination Criteria, Formal Rebuilding Programs, and Annual Catch Limits

#### 7.4.1.1 Revised Status Determination Criteria for Pollock

**Option 1: No Action**

Economic impacts of status determination criteria are transmitted through the affect these changes have on setting OFLs, ABCs, and ultimately on ACLs. For an analysis of the economic impact of ACLs associated with this option, see section 7.4.1.3.

**Option 2: Revised Status Determination Criteria for Pollock**

Economic impacts of revised status determination criteria are transmitted through the affect these changes have on setting OFLs, ABCs, and ultimately on ACLs. For an analysis of the economic impact of ACLs associated with this option, see section 7.4.1.3.

#### 7.4.1.2 Revised GB Yellowtail Flounder Rebuilding Mortality Targets

**Option 1: No Action**

The present value of total TAC revenue streams for the No Action rebuilding strategy is shown in Table 94. The present value of TAC revenue streams for the U.S. portion of this stock is shown in Table 95.

**Option 2: Revised Rebuilding Target for GB Yellowtail Flounder**

The economic impacts of the different rebuilding strategies were estimated by calculating the present value of the stream of potential revenues for each rebuilding strategy. Net benefits were not calculated since attribution of costs to a single stock in a multispecies fishery is not possible. Additionally a number of other simplifying assumptions were made. First, the yellowtail flounder ex-vessel price was held constant. Although prices do respond to changes in market supplies, ex-vessel price functions for groundfish tend to be relatively flat meaning that the average annual price change does not change all that much in response to changes in annual supplies. Second, discards were not deducted from the catch streams. Ignoring discards is recognized as resulting in an overestimate of realized revenue streams. However, since there is no basis for assuming discarding incentives would be different under any of the alternatives accounting for discarding would merely reduce the revenue streams by a scalar without having any affect on the ordinal ranking of alternatives. Last, US/Canada shares are not known more than one year ahead. To account for potential Canadian response to US rebuilding options the proposed TAC of at least 855 mt or 40% of the TAC, whichever was greater, was assumed to be attributed to Canada regardless of rebuilding alternative. This means that the US catch was set to zero for any TAC less than 855 mt and was the difference between the Canadian TAC and the total TAC. For

purposes of comparison the potential value of the total TAC and the US portion of the TAC was calculated.

Discount rates of 3%, 5%, and 7% were used. Even though the No Action alternative would have no catch from 2011 to 2014 the increased catches from 2015 to 2020 were large enough that the present value of the No Action option exceeded that of Option C. Options A, B, and D yielded higher present value than No Action. Alternative D yielded the highest present value although the difference between rebuilding by 2016 instead of 2019 with the same probability of success was only $6.3 million over a 10 year time period. In terms of ordinal ranking, Option D had highest present value followed by Option A, Option B, No Action, and Option C. These rankings were the same for all discount rates and at the median, upper and lower quartiles as well as all other percentiles of the distribution of projected catch streams.

The ordinal ranking of the present value of revenue streams based on an estimate of the US catch alone was the same as that of the combined TAC. That is Option C produced the lowest present value of revenues regardless of discount rate or percentile of the catch distribution. Notably there was almost no difference in revenue potential between the No Action and Option B. Overall Option D produced highest net present value although the difference in median present value was only about $4 million.

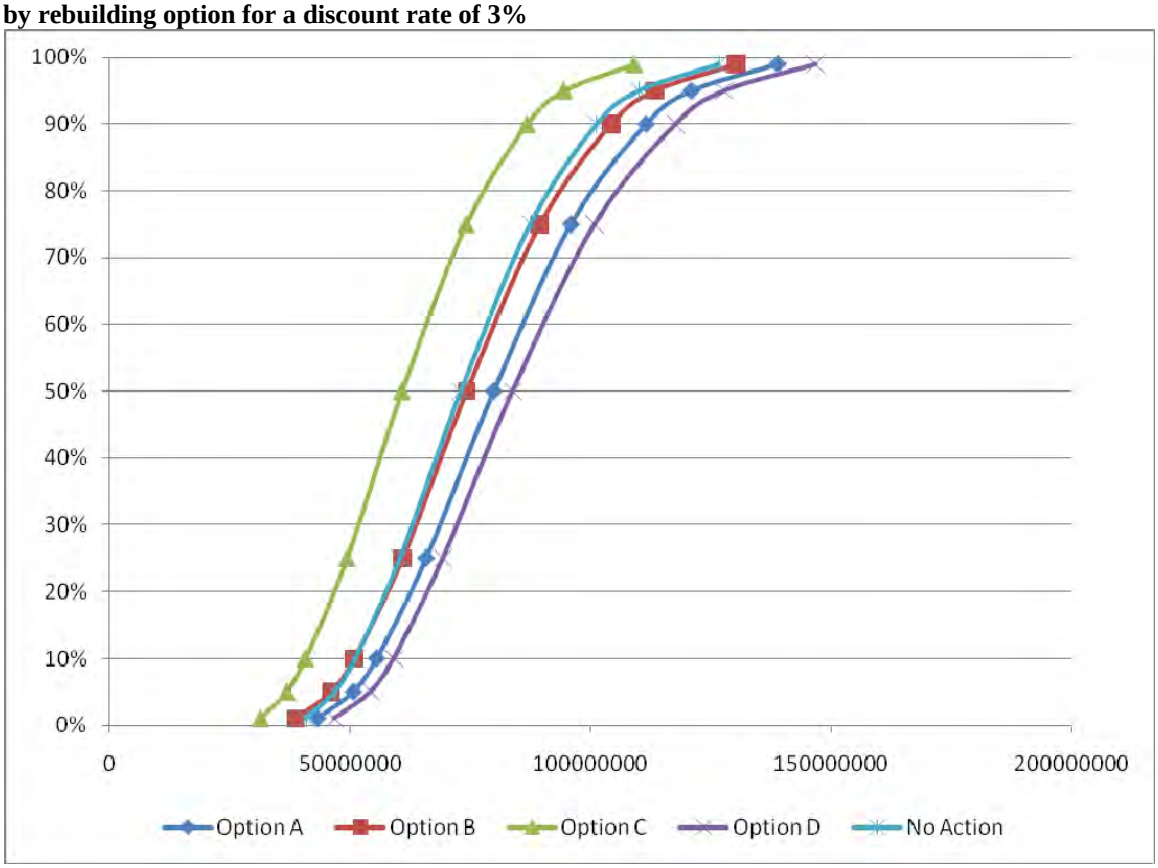
**Table 94 – Present Value of Total TAC Revenue Streams for GB YT Rebuilding Options for 3%, 5%, and 7% Discount Rates**

| 3% Discount Rate | | | |
|---|---|---|---|
| Option | Lower Quartile | Median | Upper Quartile |
| No Action | 100.9 | 122.0 | 146.1 |
| Option A | 111.0 | 133.7 | 160.2 |
| Option B | 105.1 | 126.2 | 150.7 |
| Option C | 92.8 | 110.9 | 131.6 |
| Option D | 115.9 | 140.0 | 168.3 |
| 5% Discount Rate | | | |
| Option | Lower Quartile | Median | Upper Quartile |
| No Action | 88.3 | 106.6 | 127.5 |
| Option A | 98.7 | 118.6 | 141.9 |
| Option B | 92.9 | 111.3 | 132.8 |
| Option C | 81.0 | 96.5 | 114.5 |
| Option D | 103.6 | 124.9 | 149.9 |
| 7% Discount Rate | | | |
| Option | Lower Quartile | Median | Upper Quartile |
| No Action | 77.5 | 93.5 | 111.7 |
| Option A | 88.2 | 105.8 | 126.3 |
| Option B | 82.6 | 98.7 | 117.6 |
| Option C | 71.0 | 84.5 | 100.0 |
| Option D | 93.1 | 112.0 | 134.3 |

**Table 95 - Present Value of TAC Revenue Streams for GB YT Rebuilding Options for 3%, 5%, and 7% Discount Rates for U.S. Portion of TAC**

| 3% Discount Rate | | | |
|---|---|---|---|
| | Lower Quartile | Median | Upper Quartile |
| No Action | 60.3 | 73.0 | 87.4 |
| Option A | 65.8 | 79.9 | 95.9 |
| Option B | 60.8 | 74.2 | 89.4 |
| Option C | 49.3 | 60.7 | 74.1 |
| Option D | 69.3 | 83.8 | 100.8 |
| 5% Discount Rate | | | |
| | Lower Quartile | Median | Upper Quartile |
| No Action | 52.7 | 63.7 | 76.3 |
| Option A | 58.4 | 70.8 | 84.9 |
| Option B | 53.6 | 65.3 | 78.6 |
| Option C | 42.6 | 52.4 | 64.0 |
| Option D | 61.9 | 74.7 | 89.7 |
| 7% Discount Rate | | | |
| | Lower Quartile | Median | Upper Quartile |
| No Action | 46.3 | 55.9 | 66.8 |
| Option A | 52.1 | 63.1 | 75.6 |
| Option B | 47.4 | 57.7 | 69.5 |
| Option C | 36.9 | 45.5 | 55.5 |
| Option D | 55.6 | 67.0 | 80.3 |

**Figure 50 – Cumulative probability distributions for present value of US gross revenues from GB YT by rebuilding option for a discount rate of 3%**




### 7.4.1.3 Annual Catch Limit Specifications

**Option 1: No Action**

For stocks that may be improving more rapidly than anticipated or where the scientific understanding of status has changed due to a revised stock assessment, taking no action would result in forgone income provided the No Action ACL was market limited. Conversely, taking no action to change an ACL in a stock that is declining at an unanticipated rate or, if based on new information, a stock is found to be less productive than previously thought, revised stock failure to adjust an ACL may prolong rebuilding or may prevent rebuilding from occurring. In this instance current revenues may be higher, but lower longer term revenue streams may offset any short term gains.

The economic impact of taking no action and revised 2011 and 2012 ACLs was estimated in a manner similar to that done for Framework 44. Specifically, total potential revenue was assumed to be measured by the revenue associated with taking the entire ACL for all stocks. This would only be possible if there were no discarding and all stocks were taken with perfectly selective gear. An estimate of potential realized revenues was obtained by projecting the ACL utilization rate based catch rates as of October 16, 2010 forward for the rest of the fishing year then adjusting for discards.

The projected annual utilization rate was calculated by dividing the ACL use rate as of October 16 (NERO multispecies monitoring reports) by the number of elapsed weeks (25) in the fishing year (see Table 96). The weekly catch rate was then multiplied by 52 to obtain an estimate of ACL use rate for the entire fishing year. These calculations suggest that sectors would catch their cumulative allocation of GB yellowtail and witch flounder with a small overage and at least 75% of the sector sub-ACL for GOM cod, GOM haddock, and witch flounder. The FW44 economic analysis posited sector exemptions and changed economic incentives would enable sectors to obtain higher utilization rates than past experience. The last column in Table 96 shows the PDT estimated average underages and overages for TTACs set for the 2007-2008 fishing years. Comparing these estimates with the FY10 sector ACL use suggests that sectors may indeed be able to obtain higher use rates as the estimated FY10 use rates for GB cod, GOM cod, GOM haddock, plaice, witch flounder, and GB winter exceeded that of the 2007-2008 average. Note that there was no TTAC set for GOM winter during 2007-2008, and the adjusted FY10 for pollock ACL is substantially larger than the Pollock TTAC during FY2007 and FY2008. Whether this preliminary assessment finding, based on partial year data, will be borne out is uncertain. Furthermore, individual sector performance may differ substantially from this analysis based on aggregate data.

The projected ACL use rates suggest that the common pool will exceed its FY10 sub-ACL for GOM cod, GB YT, CC/GOM YT, witch flounder, and for white hake. Depending on actions taken by the RA to reduce these potential overages the estimated use rates for other stocks may be affected. This management uncertainty compounds the uncertainty already embedded in the procedures used to calculate a projected ACL use rate for the common pool.

**Table 96 – Estimated Sector and Non-Sector ACL Utilization Rates**

| Stock | Percent Sector Catch As of October 9 | Sector Weekly Catch Rate | Projected FY10 Sector ACL Utilization | Percent Non-Sector Catch As of October 9 | Non-Sector Weekly Catch Rate | Projected FY10 Non-Sector ACL Utilization | 2007-2008 Average Utilization Rate |
|---|---|---|---|---|---|---|---|
| GB Cod | 29% | 0.01215 | 63.2% | 8.6% | 0.0036 | 18.6% | 44% |
| GOM Cod | 42% | 0.01766 | 91.9% | 89.1% | 0.0371 | 193.1% | 69% |
| GB Haddock | 8% | 0.00323 | 16.8% | 27.9% | 0.0116 | 60.5% | 17% |
| GOM Haddock | 13% | 0.01766 | 91.9% | 20.6% | 0.0086 | 44.7% | 51% |
| GB YT | 46% | 0.01934 | 100.6% | 91.8% | 0.0383 | 198.9% | 117% |
| SNE/MA YT | 5% | 0.00205 | 10.7% | 12% | 0.0011 | 5.6% | 174% |
| CC/GOM YT | 16% | 0.00680 | 35.4% | 63.6% | 0.0265 | 137.7% | 55% |
| Plaice | 23% | 0.00973 | 50.6% | 30.0% | 0.0125 | 65.0% | 28% |
| Witch Flounder | 34% | 0.01398 | 72.7% | 116.0% | 0.0483 | 251.2% | 24% |
| GB Winter Flounder | 49% | 0.02037 | 105.9% | 30.2% | 0.0126 | 65.4% | 48% |
| GOM Winter Flounder | 28% | 0.01147 | 59.7% | 85.5% | 0.0356 | 185.2% | NA |
| Redfish | 14% | 0.00567 | 29.5% | 6.5% | 0.0027 | 14.1% | 46% |
| White Hake | 27% | 0.01118 | 58.2% | 78.5% | 0.0327 | 170.0% | 114% |
| Pollock | 11% | 0.00467 | 24.3% | 23.1% | 0.0096 | 50.0% | 82% |

Estimated discard rates for sectors and the common pool were calculated based on cumulative catch reports as of October 9 (see Table 97). As was the case for the calculated ACL use rates, the

calculated discard rates are also based on partial year data and may not reflect discarding over the entirety of the 2010 fishing year. Note that the estimated discard rates are based on aggregated data so they are unlikely to reflect sector-specific discard rates and should not be used make any inferences about the performance of any given sector.

**Table 97 – Estimated Sector and Non-Sector Discard Rates for FY 2010**

| Stock | Sector Catch (Oct 9) | Sector Landings (Oct 9) | Sector Discard Rate | Non-Sector Catch (Oct 9) | Non-Sector Landings (Oct 9) | Non-Sector Discard Rate |
|---|---|---|---|---|---|---|
| GB Cod | 1147 | 910 | 0.26 | 12 | 11 | 0.10 |
| GOM Cod | 1844 | 1335 | 0.38 | 214 | 181 | 0.18 |
| GB Haddock | 4067 | 3107 | 0.31 | 92 | 91 | 0.01 |
| GOM Haddock | 107 | 79 | 0.36 | 6 | 5 | 0.12 |
| GB YT | 392 | 296 | 0.33 | 18 | 8 | 1.30 |
| SNE/MA YT | 14 | 8 | 0.75 | 2 | 1 | 0.70 |
| CC/GOM YT | 107 | 56 | 0.90 | 32 | 13 | 1.47 |
| Plaice | 715 | 356 | 1.01 | 30 | 20 | 0.50 |
| Witch Flounder | 276 | 172 | 0.61 | 29 | 25 | 0.17 |
| GB Winter Flounder | 970 | 692 | 0.40 | 9 | 6 | 0.45 |
| GOM Winter Flounder | 22 | 18 | 0.22 | 21 | 18 | 0.19 |
| Redfish | 1000 | 617 | 0.62 | 6 | 4 | 0.48 |
| White Hake | 704 | 473 | 0.49 | 40 | 29 | 0.38 |
| Pollock | 1885 | 1141 | 0.65 | 87 | 46 | 0.88 |

Using average prices by stock as of September 30, and assuming full utilization of the No Action commercial sub-ACL the potential value of the FY11 ACL's would be $191.3 million and the potential FY12 ACL's would be $184.6 million (see Table 98). These estimates are lower than that estimated for the same ACLs in the FW44 document ($205 and $196 million respectively) because of changes in prices. In particular, as of September, 1 the average haddock price was $1.00 per pound whereas the haddock price used in the FW44 analysis was $1.25. Since GB haddock accounts for nearly half of the total ACL value under No Action, a change in prices received for this species alone would have a substantial affect on estimated potential revenues. Estimated revenues from full utilization of the commercial sub-ACL including the sub-ACL allocated to state waters and to the combined sector and common pool during FY2011 ranged from a low of $185.4 million to a high of $187.8 million. Note that the GB YT U.S. ACL would both be set to zero for the No Action and the Option C rebuilding alternatives. Based on existing sector implementation regulations sectors would not be able to operate within the GB YT stock area since they would not receive any GB YT ACE. This means that the potential revenues associated with either the No Action or Option C would be significantly lower since revenues from any other groundfish stock that coincides with the GB YT stock area would also be zero. Accounting for both discarding and the estimated ACL utilization rate the potential revenues under the No Action alternative would be $80.2 million during FY2011 and $81.9 million during FY2012. Estimated sector revenues would be $71.1 million during FY2011 and $73.0 million during FY2012. Common pool revenues would be $4.4 million during FY2011 and $4.3 million during FY2012. Note that the difference between the combined sector and common pool estimated revenues is attributable to the potential revenues from commercial fishing in state waters.

**Option 2: Revised Annual Catch Limits for Modified Stocks**

The economic impact of taking no action and revised 2011 and 2012 ACLs was estimated in a manner similar to that done for Framework 44. Specifically, total potential revenue was assumed to be measured by the revenue associated with taking the entire ACL for all stocks. This would only be possible if there were no discarding and all stocks were taken with perfectly selective gear. An estimate of potential realized revenues was obtained by projecting the ACL utilization rate based catch rates as of October 16, 2010 forward for the rest of the fishing year then adjusting for discards.

Compared to the No Action alternative, estimated revenues for FY2011 and FY012 are lower because the revised reference points for both GB haddock and for GB YT. That is, even though the revised reference point results in a larger Pollock ACL the combined effect of a lower ACL for GB haddock and for GB YT results in a net difference of $2-3 million depending on GB YT rebuilding option is selected. As was the case above, both the GB YT No Action rebuilding alternative and rebuilding Option C would result in a zero ACL for both FY2011 and FY2012 so the estimated revenues under either of those options would be much lower than shown here.

**Table 98 – Estimated Commercial Revenues ($ million) by ACL Option for FY 2011 and FY 2012**

| | Full Commercial ACL Utilization Total Revenue | | Estimated Commercial Total Revenue | | Estimated Sector Revenue | | Estimated Common Pool Revenue | |
|---|---|---|---|---|---|---|---|---|
| Option | 2011 | 2012 | 2011 | 2012 | 2011 | 2012 | 2011 | 2012 |
| Option 1 - No Action | $194.1 | $187.9 | $80.2 | $81.9 | $71.1 | $73.0 | $4.4 | $4.3 |
| Option 2 - GBYT No Action | $185.4 | $180.0 | $77.7 | $79.3 | $68.3 | $70.0 | $3.9 | $3.9 |
| Option 2 - GBYT A | $187.8 | $181.0 | $79.8 | $72.5 | $70.4 | $62.6 | $3.9 | $4.5 |
| Option 2 - GBYT B | $186.6 | $180.3 | $78.7 | $71.9 | $69.3 | $62.0 | $3.9 | $4.5 |
| Option 2 - GBYT C | $185.4 | $178.8 | $77.7 | $70.7 | $68.3 | $60.7 | $3.9 | $4.5 |
| Option 2 - GBYT D | $187.8 | $181.0 | $79.8 | $72.5 | $70.4 | $62.6 | $3.9 | $4.5 |

### 7.4.1.4 U.S./Canada Resource Sharing Understanding TACs

**Option 1: No Action**

The No Action Alternative, under which specification of U.S./Canada TACs would not occur, would result in greater revenue in FY 2011 than under the proposed alternative. The catch of haddock and cod would not be limited in the Eastern U.S./Canada Area, so that there would be greater opportunity to catch available fish. Because there would still be Annual Catch Limits for GB cod and haddock (stock-wide ACLs), the amount of catch from the Eastern U.S./Canada Area would still be limited. There would be greater overall revenue in FY 2011 as a result of the increased access to other stocks in the Eastern U.S./Canada Area, under the No Action Alternative. The No Action Alternative would essentially represent a management strategy that does not address the transboundary aspect of cod, haddock, and yellowtail flounder, and the likely resulting level of fishing mortality on the transboundary stocks would be higher, and may be unsustainable. The long term economic impacts of the No Action Alternative are more likely to

be negative than the proposed Alternative, due to the increase biological risk associated with the No Action Alternative. Stock rebuilding and the associated revenue that is likely to result from an increasing stock size could be jeopardized by the No Action Alternative.

In contrast with the No Action Alternative, the Preferred Alternative would have short term negative economic impacts, due to the fact that the harvest of the shared stocks would be constrained by the TACs.

**Option 2: U.S./Canada TACs**

The economic impacts that result from the use of hard TACs for the shared stocks of GB stocks can best be described in terms of 5 different effects: 1) Hard TACs for cod, haddock, and yellowtail flounder will limit the total amount of catch of these stocks (landings and discards) allowed by law; 2) Associated rules such as gear restrictions, trip limits, and closures that may be implemented in order to prevent catch from exceeding the TACs will impact when and how such access to these stocks occurs; 3) Access restrictions implemented to control catch of one particular stock may indirectly impact access to other stocks; 4) Discarded fish count against the TAC; and 5) The timing and rate of landing of these stocks may impact the market for these species. These effects are described in more detail in the following section. This discussion builds upon the information contained in the affected environment, the description of the GB groundfish fishery.

The economic impacts of the proposed hard TACs are difficult to predict because of the 5 effects noted above, the fact that the Amendment 16 regulations that implemented substantial changes in the fishery will still be relatively new in FY 2011, and the fact that these effects interact in a complex manner. The amount of fish landed and sold will not be equal to the sum of the TACs, but will be reduced as a result of discards, and may be further reduced by limitations on access to stocks that may result from the associated rules. Reductions to the value of the fish may result from fishing derby behavior and potential impact on markets.

The cod, yellowtail, and haddock TACs specified under the Understanding all represent reductions in the size of the TACs compared to those specified for FY 2010 as shown in Table 99 below.

**Table 99 – TACs for U.S./Canada Stocks, FY 2010 and FY 2011**

| Stock | 2010 TAC (mt) | 2011 TAC (mt) | Difference |
|---|---|---|---|
| GB yellowtail | *1,200 | 1,045 | -13 % |
| Eastern GB cod | 338 | 200 | -41 % |
| Eastern GB haddock | 11,988 | 9,640 | -20 % |

*Adjusted downward from 1,200 mt to 1,407 due to 2009 overharvest.

A further reduction to the TAC will result from the allocation of GB yellowtail flounder to the scallop fishery. There are multiple alternative management scenarios under consideration for the scallop fishery for FY 2011, and therefore multiple allocations of yellowtail flounder based upon anticipated yellowtail catch by the scallop fishery. One alternative represents an increase, and the rest represent decreases when compared to FY 2010.

As noted above, it is difficult to predict the fishing patterns that are likely to occur in FY 2011 due to the fact that this fishery is evolving. Although there may be increased efficiencies as a result of sectors, as well as decreased discarding, which may increase revenue and/or profitability,

the substantially reduced TACs will nevertheless result in reduced overall revenue. The reduced revenue will be due to both the decreased potential landings of cod and yellowtail, as well as a loss of revenue from other stocks caught on trips to the Eastern Area, when vessels lose access to this area when the TAC is projected to be caught. Although the level of haddock catch in the Eastern U.S./Canada Area is not likely to be limited by the TAC, access to haddock may be impacted by the cod and yellowtail TACs. Winter flounder is the second most valuable stock caught in the Eastern U.S./Canada area (after haddock). If vessels are able to harvest more haddock than in previous years, some of the decreased revenue described above may be recouped through increases in haddock landings.

Providing an estimate of possible catch levels and the associated revenue, based upon multiple assumptions, may be the most useful way of estimating economic impacts. Table 100 contains estimates of 2008, 2009, and 2010 revenue from the U.S./Canada Area, based upon 'matched' dealer data, and extrapolations based on total trip length to trip length on matched trips.

**Table 100 – Revenue from U.S./Canada Area for Fishing Year 2008, 2009, and 2010**

| Stock or Species | Revenue 2008 | Revenue 2009 | Revenue 2010 Ω |
|---|---|---|---|
| Eastern Georges Bank Cod | $ 1,610,820 | $ 1,268,734 | $ 827,580 |
| Eastern Georges Bank Haddock | $ 3,797,560 | $ 4,795,397 | $ 1,866,460 |
| Georges Bank Yellowtail Flounder | $ 3,205,300 | $ 2,613,800 | $ 955,451 |
| Sum | $ 8,613,680 | $ 8,677,931 | $ 3,649,492 |
| All Species (including other groundfish and non-groundfish species) | $ 41,819,778 | $ 39,322,036 * | $ 19,168,254 |

*Does not include lobster revenue, which, in 2008 was worth $ 1.5 M (448 trips)
Information through October 23, 2010 (only partial fishing year)

Although FY 2008 and 2009 had similar levels of revenue, and similar numbers of distinct vessels fishing, there were 27% more trips in FY 2009 than 2008 (see also Section 6.2.5). Such a trend generates questions about the trip length, and the overall profitability of trips to the U.S./Canada Area that have not been explored. Table 101 below provides an estimate of revenue associated with the proposed 2011 TACs based on assumed price, assumed percentage of TAC caught, and an assumed discard-to-catch ratio. Past fishing years and FY 2010 catches were utilized to estimate two scenarios for the percentage of TAC caught. Discard to catch ratios and price per pound were from 2009 data. Average price estimates are based on 2009 dealer reports submitted to the NMFS Fisheries Statistics Office. Catch and landings data are based upon VMS and dealer report data, and adjusted according to the methods described at the following internet address: http://www.nero.noaa.gov/nero/regs/infodocs/DiscardCalculations.pdf. It is likely that cod will be the most limiting stock.

**Table 101 – Revenue Estimates from Landings of Shared Stocks from U.S./Canada Management Area for 2011, under Two Scenarios.**

| Stock | TAC | Assumed Price per lb | Scenario 1 % of TAC caught | Scenario 1 FY 2001 Revenue Estimate | Scenario 2 % of TAC caught | Scenario 2 FY 2011 Revenue Estimate |
|---|---|---|---|---|---|---|
| Eastern GB Cod | 200 | $ 1.54 | 75% | $ 331,024 | 100% | $ 441,365 |
| Eastern GB Haddock | 9,640 | $ 1.03 | 5 % | $ 1,083,562 | 10% | $ 2,167,124 |
| GB Yellowtail | 1,045 | $ 1.20 | 75% | $ 1,430,679 | 100% | $ 1,907,572 |
| Total | | | | $ 2,845,265 | | $ 4,516,061 |

* Discard rates: 35 %, 1 %, and 31 % (cod, haddock, and yellowtail, respectively)

According to Table 100 and Table 101 above, for 2009 the total revenue from Eastern GB cod, Eastern GB haddock, and GB yellowtail was approximately $ 8,677,931 – slightly more than the FY 2008 value of $ 8,613,680. For 2011, the estimate of the total revenue from Eastern GB cod, Eastern GB haddock, and GB yellowtail is between $ 2,845,265 and $ 4,516,061, a substantial reduction from FY 2009 revenue. The prices paid for these stocks in FY 2010 (to date) have been higher than in FY 2009, so the above FY 2011 revenue values, which are based upon FY 2009 prices, may be underestimated. The reduced size of the FY 2011 TACs is the principal reason for the reduced level of revenue expected.

When considering the revenue associated with the landings of cod, haddock, and yellowtail flounder from the U.S./Canada Area, and the impact of interannual fluctuations in the size of the TACs, it is important to note that many other species are landed from trips to the U.S./Canada Area. If the time period during which vessels have access to the area is prolonged, there would also be increased landings of other groundfish and non-groundfish species, resulting in additional revenue. Due to the implications of catching a TAC for either the common pool or sector vessels on access to resources in addition to cod, haddock and yellowtail flounder, the reduced size of the 2011 cod and yellowtail TACs will affect total revenue in 2011. However, it is very difficult to estimate the potential revenue for *other stocks* caught on trips to the U.S./Canada Area for FY 2011 due to the fact that the number of vessels that will be fishing in the common pool and in sectors in FY 2011 is not finalized. Furthermore, it is too soon to draw conclusions regarding the impact of the Amendment 16 management regime on the U.S./Canada Area fishery. The current (2010) fishing year, which is the first in which the majority of the groundfish fishery is fishing in sectors, is only half completed at the time of this analysis. The U.S./Canada TACs will be divided between the common pool and sectors. When the common pool cod, haddock, or yellowtail flounder TAC is projected to be caught, common pool vessels may no longer fish in the Eastern U.S. Canada Area, and lose all fishing opportunity in the Eastern Area. If the yellowtail flounder TAC is caught, a common pool vessel may still fish in the Western U.S./Canada Area, but may not retain yellowtail flounder. When a particular sector catches its TAC of Eastern U.S. cod or haddock the implications are the same (as for a common pool vessel), however when a sector catches its TAC (ACE) for GB yellowtail flounder they lose fishing opportunity throughout the yellowtail stock area. It should be noted that the amount of haddock that has been harvested from the U.S./Canada Area has been increasing since 2004, but it is unknown whether this trend will continue.

In contrast with the No Action Alternative, the Preferred Alternative would have short term negative economic impacts, due to the fact that the harvest of the shared stocks would be constrained by the TACs.

### 7.4.1.5 Yellowtail Flounder Allocations for the Scallop Fishery

**Option 1: No Action**

The revenue loss associated with this option is shown in Table 102 (GB yellowtail flounder) Table 103 (SNE/MA yellowtail flounder). The primary revenue loss to the scallop fishery was generally the greatest with this action compared to all other options except for the Channel closure option in the scallop plan.

**Option 2: Revised Allocations**

The potential revenue loss to the groundfish fishery as a result of an allocation of Georges Bank yellowtail flounder and Southern New England/Mid Atlantic yellowtail flounder to the scallop fishery can be characterized as primary and secondary losses. Primary revenue loss results from the forgone sale of yellowtail flounder. Secondary revenue loss is a result of the potential loss of access to GB fishing grounds (and other revenue), if the GB yellowtail flounder ACL is reached and vessels are prohibited from fishing on GB. The primary revenue loss as a result of allocations of yellowtail flounder to the scallop fishery was estimated based upon a simple calculation using price per pound and pounds of yellowtail flounder, and is shown in Table 102 and Table 103, below.

**Table 102 – Primary Revenue Loss Associated with Allocation of Georges Bank Yellowtail Flounder to Scallop Fishery; Fishing Years 2011 through 2013.**

| Alternative | Year | Sub-ACL (mt) | lb | Revenue |
|---|---|---|---|---|
| Grndf No Action | 2011 | 2197 | 434,311 | $ 581,976 |
| Scllp No Action | | 33.2 | 73,193 | $ 98,079 |
| Scenario 1 | | 153 | 337,307 | $ 451,992 |
| Scenario 2 | | 43.9 | 96,783 | $ 129,689 |
| Channel closure | | 260.8 | 574,966 | $ 770,454 |
| Grndf No Action | 2012 | 308 | 679,024 | $ 909,892 |
| Scllp No Action | | 32.2 | 70,989 | $ 95,125 |
| Scenario 1 | | 298.4 | 657,859 | $ 881,532 |
| Scenario 2 | | 254.6 | 561,297 | $ 752,138 |
| Channel closure | | 307.1 | 677,040 | $ 907,233 |
| Grndf No Action | 2013 | na | na | na |
| Scllp No Action | | 42.5 | 93,696 | $ 125,553 |
| Scenario 1 | | 352.7 | 777,570 | $ 1,041,944 |
| Scenario 2 | | 42.5 | 93,696 | $ 125,553 |
| Channel closure | | 43.7 | 96,342 | $ 129,096 |

Price per pound for yellowtail = $ 1.34 (GB; FY 2010)

**Table 103 – Primary Revenue Loss Associated with Allocation of Southern New England/Mid Atlantic Yellowtail Flounder to Scallop Fishery; Fishing Years 2011 through 2013.**

| Alternative | Year | Sub-ACL (mt) | lb | Revenue |
|---|---|---|---|---|
| Grndf No Action | 2011 | 80 | 176,370 | $ 236,336 |
| Scllp No Action | | 79.6 | 175,488 | $ 235,154 |
| Scenario 1 | | 48.2 | 106,263 | $142,392 |
| Scenario 2 | | 48.2 | 106,263 | $ 142,392 |
| Channel closure | | 46 | 101,413 | $ 135,893 |
| Grndf No Action | 2012 | 126 | 277,782 | $ 372,228 |
| Scllp No Action | | 55.3 | 121,916 | $ 163,367 |
| Scenario 1 | | 70.1 | 154,544 | $ 207,089 |
| Scenario 2 | | 86.5 | 190,700 | $ 255,538 |
| Channel closure | | 69.6 | 153,442 | $ 205,612 |
| Grndf No Action | 2013 | na | na | na |
| Scllp No Action | | 77.3 | 170,417 | $ 228,359 |
| Scenario 1 | | 112.2 | 247,359 | $ 331,461 |
| Scenario 2 | | 76.5 | 168,654 | $ 225,996 |
| Channel closure | | 73.5 | 162,040 | $ 217,133 |

Price per pound for yellowtail = $ 1.34 (GB; FY 2010)

The primary (yellowtail flounder) revenue loss ranged from a low of $ 98,079 (FY 2011 no action scallop alternative for GB), up to $ 1,041,944 for the scenario 1 for FY 2013 for GB). For FY 2011, among the proposed allocations for GB, Scenario 2 would have the least economic impacts on the groundfish fishery. For FY 2011, among the proposed allocations for SNE/MA, the Channel Closure Scenario would have the least economic impacts on the groundfish fishery. The economic loss associated with an allocation of GB yellowtail flounder to the scallop fishery may represent a loss of fishing opportunity on GB, in addition to the loss of revenue resulting from a reduced groundfish sub-ACL for yellowtail flounder. An allocation of GB yellowtail flounder to the scallop fishery could result in the groundfish fishery harvesting the ACL for GB yellowtail flounder during the fishing year, which would mean that vessels in sectors would be required to cease fishing on GB. Vessels in the common pool would be prohibited from fishing in the Eastern U.S./Canada Area, and prohibited from possessing yellowtail flounder while fishing in the Western Area. Based on the historic levels of catch of GB yellowtail flounder by the groundfish fishery, in the future the fishery would likely have the capacity and flexibility for the fishery to catch the amount of yellowtail flounder allocated to the scallop fishery. Therefore, the full economic impact to the groundfish fishery would in fact be substantially greater than the loss due to the scallop revenue alone.

A simple estimate of the amount of revenue from other species (secondary revenue) that would be forgone if GB was closed to groundfish fishing was conducted (based on the ratio of total GB revenue to GB yellowtail flounder revenue using FY 2010 data, through October 23, 2010). This estimate assumes that all vessels fish in sectors in FY 2011, which is not precisely valid, but provides a scenario that can approximate secondary impacts. In FY 2010, the ratio of the value of the catch of all species to yellowtail is approximately 19 to 1. If vessels were not fishing on GB due to a closure, for each ton of GB yellowtail forgone, there would be a loss of approximately $ 56,130 in revenue from other GB species (groundfish and non-groundfish). At $ 1.34 per pound, the value of a ton of GB yellowtail is approximately $ 2,954. This analysis results in a higher estimate of the secondary economic impacts from the scallop allocation than did the FW 44

analysis, because the secondary impacts estimated by FW 44 were limited to the proportion of yellowtail flounder caught in the Eastern U.S./Canada Area. In other words, FW 44 analyzed the impacts as if the common pool management measures would result in only a partial limitation of access to GB (and limited secondary impacts), instead of a full closure of GB (due to the assumption that all vessels are participating in sectors).

### 7.4.2 Fishery Program Administration

#### 7.4.2.1 Implementation of Additional Sectors

**Option 1 – No Action**

*To be completed*

**Option 2 – Implement New Sectors for FY 2011**

*To be completed*

#### 7.4.2.2 Monitoring Requirements for Handgear A and Handgear B Permitted Vessels and Small Vessel Exemption Vessels

**Option 1 – No Action**

*To be completed*

**Option 2: Dockside Monitoring Exemption for Handgear A and Handgear B Permits and Small Vessel Exemption Permits**

*To be completed*

#### 7.4.2.3 Monitoring Requirements for Commercial Groundfish Fishing Vessels

**Option 1: No Action**

*To be completed*

**Option 2: Removal of Dockside Monitoring Requirements**

*To be completed*

**Option 3: Removal of Requirement for Industry Funding of Monitoring for FY 2012**

*To be completed*

**Option 4: Trip-end Hail Requirement**

The economic impacts associated with this option are limited to the costs associated with the submission of the trip-end hail report via VMS. The evaluation of the costs of this option assume that the current trip-end hail report originally implemented under Amendment 16, including all of the fields specified in the trip-end hail report mandated by that action, are maintained. The most expensive VMS provider currently charges $0.004 per character, plus $0.5 per email transmission. Using the fields required by the Amendment 16 trip-end hail report, the hail email consists of a total of 100 characters per submission, including the vessel permit number (6 characters), VTR serial number or other applicable trip ID number (14 characters), the first dock or dealer the vessel will be landing at (10 characters), the first port or harbor of landing (10 characters), the first state of landing (2 characters), the second port or harbor of landing (10 characters), the second state of landing (2 characters), arrival time (12 characters), offload time (12 characters), and the total weight of groundfish on board (6 characters), the total weight of non-groundfish on board (6 characters), and the commas used to separate fields (10 characters). Thus, the total cost to submit each trip-end hail report via VMS is estimated at $0.90. Assuming 25,000 trips are taken each year and that 2,500 trip-end hail reports are also submitted to correct inaccuracies in the originally-submitted trip-end hail reports, the total annual cost to the public for complying with this requirement is estimated to be $24,750 ($0.9/hail x 27,500 hails). Therefore, this option maintains some of the costs already imposed upon the fishing industry and would not increase costs compared to the No Action alternative.

### 7.4.2.4 Distribution of PSC from Canceled Permits

**Option 1: No Action**

Assuming equivalent PSC utilization rates and cost of fishing the economic value derived from available ACL would be unchanged whether the PSC from cancelled permits is allocated to the common pool under this option or equally distributed to all permits (Option 2). However, PSC utilization rates in terms of landings and the cost of fishing varies. An economically optimal allocation would allocate PSC from cancelled permits to the most profitable vessels whether they are in the common pool or in a sector. Neither This option nor Option 2 contemplates making allocations of cancelled PSC in this manner. However, if, on average, vessels that fish in the common pool are less profitable than sector vessels, then Option 2 would result in an improvement in economic efficiency as compared to this option.

**Option 2: Even Redistribution Among All Remaining Permits**

Assuming equivalent PSC utilization rates and cost of fishing the economic value derived from available ACL would be unchanged whether the PSC from cancelled permits is allocated to the common pool (No Action) or equally distributed to all permits under this option. However, PSC utilization rates in terms of landings and the cost of fishing varies. An economically optimal allocation would allocate PSC from cancelled permits to the most profitable vessels whether they are in the common pool or in a sector. Neither the No Action nor this option contemplates making allocations of cancelled PSC in this manner. However, if, on average, vessels that fish in the common pool are less profitable than sector vessels, then this option would result in an improvement in economic efficiency as compared to taking no action.

#### 7.4.2.5 Submission of Sector Rosters

**Option 1: No Action**

*To be completed*

**Option 2: Revised Submission Date**

*To be completed*

### 7.4.3 Commercial and Recreational Fishery Measures

#### 7.4.3.1 General Category Scallop Dredge Exemption – Modification of Restrictions

**Option 1: No Action**

This option would constrain the economic value of landed scallops and may result in reduced IFQ scallop share values in comparison to Option 2, which allows generally category vessels an exemption to fish in the Great South Channel. However, if fishing with a scallop dredge is found to interfere with yellowtail flounder spawning then this option may allow for higher overall landings due to greater spawning potential. Note that this does not necessarily mean that the No Action alternative should be adopted since the efficiency gains from the general category scallop dredge exemption may outweigh the losses associated with lower yellowtail spawning.

**Option 2: Exemption from Yellowtail Flounder Spawning Closure**

This option would provide the opportunity to improve the economic value of landed scallops and may result in improved IFQ scallop share values in comparison to the No Action alternative. That is, provided the exemption would make it possible to harvest the same quantities of scallop at lower cost, the economic value in terms of profitability would be improved. This improved profitability would be reflected in higher IFQ share values.

However, if fishing with a scallop dredge is found to interfere with yellowtail flounder spawning then the full cost of lower spawning success and the lower landings that may result would not be reflected in the general category scallop profitability or IFQ share prices. Note that this externality does not necessarily mean that the No Action alternative should be adopted since the efficiency gains from the general category scallop dredge exemption may outweigh the losses associated with lower yellowtail spawning.

#### 7.4.3.2 Gulf of Maine Cod Spawning Protection Area

**Option 1: No Action**

*To be completed*

**Option 2: GOM Cod Spawning Protection Measures**

*To be completed*

#### 7.4.3.3 Handgear Permit Management Measures

**Option 1: No Action**

*To be completed*

**Option 2: Rolling Closure Exemption for Handgear A Vessels**

*To be completed*

**Option 3: Partial Rolling Closure Exemption for Handgear A Vessels**

*To be completed*

**Option 4: Handgear A Trip Limit Modification**

*To be completed*

**Option 5: Handgear B Trip Limit Modification**

*To be completed*

## 7.5 Social Impacts

The need to assess social impacts emanating from federally mandated fishing regulations stems from National Environmental Policy Act (NEPA) and M-S Act mandates that the social impacts of management measures be evaluated. NEPA requires the evaluation of social and economic impacts in addition to the consideration of environmental impacts. National Standard 8 of the M-S Act demands that "Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of over fishing 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(2)(8)). The analysis that follows provides a context for understanding possible social impacts resulting from the proposed measures in Framework 45.

Amendment 13 identified five social impact factors: *regulatory discarding, safety, disruption in daily living, changes in occupational opportunities and community infrastructure, and formation of attitudes*. All of these factors can be affected by changes in management measures. Fishermen find regulatory discarding both distasteful and wasteful of valuable fishery resources. Modifications to daily routines can make long-term planning difficult. New gear requirements such as netting and some equipment must be ordered months in advance resulting in changes to daily routines when these modifications cannot be met in a time- and cost-efficient manner. Additionally, the cost of making such changes may prove to be a burden for some vessel owners. Changes in management measures that limit access to fishing may increase the likelihood of safety risks. Increased risk can result when fishermen spend longer periods at sea in order to minimize steam time to and from fishing grounds, operate with fewer crew, and fish in poor weather conditions. Formation of attitudes refers to the positive or negative feelings or beliefs expressed by members of the communities that will be affected by the Proposed Action. The effect of the Proposed Action on these factors will be discussed below.

Amendment 13 also identified primary and secondary port groups that are most affected by changes in groundfish management. The criteria port groups identified for this action are discussed in Section 6.5.2. It not likely that this action would affect all of these port groups to the same extent. Those port groups that are more dependent on groundfish would likely have more social impacts than those that participate in a range of fisheries. Even among communities with similar dependence on groundfish, there are likely to be different impacts since some measures have localized impacts. The following discussion will also highlight the differences between port groups, where appropriate.

### 7.5.1 Updates to Status Determination Criteria, Formal Rebuilding Programs, and Annual Catch Limits

#### 7.5.1.1 Revised Status Determination Criteria

**Option 1: No Action**

Under the No Action alternative, the status of pollock would remain as adopted in Framework 44 and major social impacts would not be expected to occur when compared to that action. The status of pollock would be considered as described in Amendment 16. It should be noted that the adoption of the No Action alternative would entail the failure to incorporate best available science in the setting of status determination criteria, and would not be consistent with the M-S Act. This could affect *formation of attitudes* by creating the appearance that management measures were out of date and inflexible.

**Option 2: Revised Status Determination Criteria for Pollock**

This option adopts the SDC recommended by SAW 50 (NEFSC 2010). Using these criteria, the stock is not overfished and overfishing is not occurring. The stock is estimated to be above $SSB_{MSY}$ and as a result a formal rebuilding program is no longer required. Catches can increase above recent levels and well above the catches proposed in FW 44 using the No Action SDC and a formal rebuilding program.

Compared to the No Action alternative, the most substantial effect of this alternative will be the increase in allowable catch levels. This increase is not expected to have major social impacts. The inclusion of the best available, and most recent, science into management measures may have a slight positive effect on the *formation of attitudes* about the management process. The assessment was conducted in part due to public concern about the accuracy of previous assessments on this stock. The positive response of incorporating these results in a timely manner should lead to some degree of satisfaction among interested parties.

#### 7.5.1.2 Revised GB Yellowtail Flounder Rebuilding Mortality Targets

**Option 1: No Action**

This option would rebuild this stock more quickly than the other options under consideration by targeting rebuilding by 2014 with a 75 percent probability of success. The 2010 assessment of this stock (TRAC 2010) indicated that a fishing mortality of F=0 would need to be adopted to achieve this goal (although the assessment noted that goal could not be achieved even under this fishing mortality). A fishing mortality of F=0 would mean all fishing would cease.

This measure would clearly result in major social impacts to all people associated with the fishery, as well as to the general public. All industry members who fish on this stock would be adversely affected, as would fish dealers and processors and many other people. Unemployment would likely increase as a result of the decline in fishing activity. Unemployment creates huge problems for communities both on an economic and personal level. The shut-down of the fishery would also delegitimize the management process and lead to much public anger, especially when there are other options considered that would not have this effect.

**Option 2 – Revised Rebuilding Target for GB Yellowtail Flounder**

Four alternative rebuilding strategies are being considered for this measure, all of which target a rebuilding at a slower pace than under the No Action alternative. The four options under consideration are:

> Sub-option A: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 50 percent probability of success
> Sub-Option B: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 60 percent probability of success
> Sub-Option C: Use a fishing mortality target that is calculated to rebuild the stock by 2016 with a 75 percent probability of success
> Sub-Option D: Use a fishing mortality target that is calculated to rebuild the stock by 2019 with a 60 percent probability of success

Any of these options would have positive social impacts compared to the No Action alternative. They would all result in increased effort and landing of this stock when compared to the No Action alternative, which would provide for some increased occupational opportunities, although the exact amount of the effort increase is difficult to predict in a mixed-stock fishery. An increase in available GB yellowtail flounder could enable sectors and the common pool to operate longer before reaching their ACE and ACL, which would help create a more stable market and facilitate long-range planning for industry participants. Adoption of these options will also instill a sense of fairness that the rebuilding plans were re-considered in a way that promoted economic growth and incorporated best available science to not be unreasonable restrictive. Each option will have the same effect; the magnitude of that effect will be determined by how much the chosen strategy increases available catch over the applicable time frame.

### 7.5.1.3 Annual Catch Limit Specifications

**Option 1: No Action**

This No Action option does not modify the OFLs/ABCs/ACLs for GB cod, GB haddock, GB yellowtail flounder, white hake, and pollock that were adopted by FW 44 (NEFMC 2010). All of the elements of the ACLs would remain the same, such as the allocations of GB and SNE/MA yellowtail flounder to the scallop fishery that were adopted in that same action.

The No Action alternative for specifications, if adopted, would entail the failure by the Council to adopt ACLs for the fishery that would correspond to management measures adopted in this action, as well as a lack of TACs for the U.S./Canada area. A description of the social impacts of using ACLs in the management of the groundfish fishery can be found in Amendment 16. As with the other measures related to status determination criteria and setting of catch levels, the failure to incorporate the best available science and use the most up-to-date method of setting ACLs is likely to have the biggest social impact in the area of *formation of attitudes*. Participants in the fishery will likely view the management process as having less legitimacy if the ACLs do not match the management measures.

**Option 2: Revised Annual Catch Limits for Modified Stocks**

This option proposes to adopt new specifications and ACLs for FY 2011 -2012 for GB cod, GB haddock, GB yellowtail flounder, white hake, and pollock. This measure includes the

identification of ACLs, OFLs, and ABCs as required by the M-S Act and as implemented by Amendment 16. It also incorporates adoption of the incidental catch TACs for the special management programs that use Category B DAS. Implementation of ACLs is required by the Magnuson-Stevens Act and may have social impacts that are difficult to define. The social impacts of ACL-setting in general are discussed in detail in Amendment 16.

Compared to the No Action alternative, some of the ACLs being adopted are more permissive than those in Framework 44, while others are more restrictive. The adoption of the more restrictive ACLs may lead to concerns that the fishery is being managed in an overly conservative manner. This could affect attitudes towards the management program since it will be viewed as limiting occupational opportunities unnecessarily. However, the more permissive ACLs proposed in this option are likely to have the opposite effect: they can increase *occupational opportunities* and reduce *regulatory discarding* that may occur if trip limits are imposed on stocks with low ACLs. These effects are expected to be minor. Because this is a mixed-stock fishery, an increase in ACLs for certain stocks, such as pollock, is tempered by the fact that catches may still be limited by bycatch or concurrent catch of other species managed in the FMP.

Because the ACLs are simply caps on the amount of catch that can occur for each stock in the fishery, the adoption of ACLs numbers itself does not have major social impacts. There is likely to be little difference between the social impacts of the Proposed Action and No Action. Under both circumstances, catches are limited, they may be viewed as conservative limits, and the complexity of setting the limits may deter participation in the management process. The relatively minor differences in catch levels are not likely to substantially alter the perception of the management program.

#### 7.5.1.4 U.S./Canada Resource Sharing Understanding TACs

**Option 1: No Action**

This option would not implement the recommendations of the TMGC and there would be no resultant TAC for GB cod, haddock, or yellowtail flounder in the U.S./Canada area for FY 2011. This would be expected to have negative long-term social impacts, as it would be more difficult to meet rebuilding targets without a localized TAC. A slower rebuilding timeframe would lead to fewer *occupational opportunities* due to smaller stock size over the long term. Additionally, the failure of the U.S. to uphold their agreement with Canada could lead to poor *formation of attitudes* on a high level and could negatively impact future negotiations if the Canadians do not believe that agreements will be upheld.

**Option 2: U.S./Canada TACs**

This option adopts the TACs for Eastern GB cod, Eastern GB haddock, and GB yellowtail flounder that are applicable to the U.S./Canada Resource Sharing Understanding. The proposed hard TACs for the U.S./Canada area are not expected to have significant social impacts in comparison to the No Action alternative. The TACs for EGB cod and haddock and GB yellowtail flounder were determined in the same way as has been done in recent years. TACs of the three co-managed species vary from year to year, and the FW 45 numbers are lower than in recent years but not hugely so. Although discarding may occur in the area as it does in the rest of the fishery, it is unlikely to be a special issue.

Although the Proposed Action would be expected to have short-term negative economic impacts in contrast to the No Action Alternative, the impacts should not be significantly different from those in the rest of the fishery in a way that would cause them to have unique social impacts. The long term impacts of the No Action Alternative are more likely to be negative than the Proposed Action. Stock rebuilding is likely to have positive social effects, as it will allow effort to increase in the area, and such rebuilding could be jeopardized by the No Action alternative.

#### 7.5.1.5 Yellowtail Flounder Allocations for the Scallop Fishery

**Option 1: No Action**

Under this option, the scallop fishery yellowtail flounder allocations implemented in FW 44 would not be changed. Allocations were only specified for FY 2010 – 2012. The allocations are shown in Table 10. Note that in this instance "No Action" refers to keeping the FY 2011 and FY 2012 yellowtail founder allocations (in terms of weight) specified in FW 44 and not a specific suite of scallop management measures.

Because the framework to the Scallop FMP that adopts ACLs for that fishery has not been approved yet, it is difficult to analyze how keeping the yellowtail flounder allocations the same as in FW 44 would affect the fishery, and therefore what the social impacts would be. In general, if the yellowtail allocation constrains the scallop catch, the social impacts would be negative to the scallop fleet due to lost occupational opportunities and disruptions in planning and daily living. It could also lead to increased unreported discarding, although the scallop fleet is currently required to land all yellowtail flounder caught. The other social impacts of this allocation, such as a possible perception of inequity between the scallop and groundfish fleets, were described in Framework 44.

**Option 2: Revised Allocations**

An estimate of the yellowtail flounder that will be caught by the scallop fishery in FY 2011 – FY 2013 if it harvests its projected yield was developed for four scallop management scenarios. In FW 44, the Council based the FY 2011 and 2012 yellowtail flounder allocation to the scallop fishery on 90 percent of this expected catch.

This option, similar to the No Action alternative, is difficult to analyze because it is uncertain whether the expected catch will increase or decrease, and thus whether the 90% allocation to the scallop fleet will be more or less than in previous years. It is also difficult to determine whether these allocations could constrain either scallop or groundfish catch. In general, if catches are constrained in one fishery, that fishery will experience negative social impacts including changes in behaviors and possible increases in discarding. If it is perceived that the catches are constrained in one fishery while disproportionally benefitting the other, it may lead to social tension between the two fisheries.

### 7.5.2 Fishery Program Administration

#### 7.5.2.1 Implementation of Additional Sectors

**Option 1: No Action**

If the No Action alternative is selected, there will be no additional sectors approved for operation in FY 2011. This is most likely to cause *disruptions in daily living*, as fishery participants that wanted to join the proposed sectors will not be able to join the sectors they prefer and will be forced to choose between joining the existing sectors and fishing in the common pool. Additionally, *formation of attitudes* could be affected if sector applicants feel that their proposals were unfairly denied when several new sectors were approved in Amendment 16 for the last fishing year.

**Option 2: Implement New Sectors for FY 2011**

This measure is largely administrative in nature and is not, in itself, likely to have major impacts on any of the social factors when compared to the No Action alternative. The new sectors, as proposed in this option, may create *changes in occupational opportunities and community infrastructure*, because each sector may have jobs associated with it and provide more geographical options for participants in the fishery. Also, an increase in options for sector membership may mitigate *disruptions in daily living* if participants can find sectors that are more geographically or socially suitable to their interests. The Amendment 16 analysis of social impacts concluded that increased sector membership would reduce regulatory discarding, so the creation of new sectors in this option will also have that effect if it encourages a larger percent of fishermen to join sectors or shifts effort into those sectors.

#### 7.5.2.2 Monitoring Requirements for Handgear A and Handgear B Permitted Vessels and Small Vessel Exemption Vessels

**Option 1 – No Action**

Under the No Action alternative, vessels with Handgear A, Handgear B, and Small Vessel Exemption permits would be subject to the same requirements for dockside monitoring as other common pool vessels. Measures adopted in Amendment 16 require that all common pool vessels would be subject to dockside monitoring beginning in FY 2012, when the hard TAC AM is implemented for common pool vessels. The current required level of coverage is for 20 percent of trips to be monitored.

This option would have some effect on the handgear and small vessel exemption fleets. These fleets land small amounts of groundfish, and in comparison to revenues the cost of dockside monitoring is high. Payment for dockside monitoring could lead to decreased profitability for these fleets and could potentially impact fishing operations and change occupational opportunities as operators cut other costs in order to pay for monitoring. However, the revenues from this portion of the fleet have not decreased more substantially than those associated with other permit types, so it is difficult to predict whether this option would actually change behavior in a different way than the suite of management measures as a whole.

**Option 2: Dockside Monitoring Exemption for Handgear A and Handgear B Permits and Small Vessel Exemption Permits**

This option removes the requirement that Handgear A, Handgear B, and Small Vessel Exemption vessels fishing in the common pool have 20 percent of their trips monitored by dockside monitors beginning in FY 2012. The requirement would remain for Handgear A and Small Vessel Exemption Vessels that fish in sectors (Handgear B vessels are not eligible to join sectors).

This option would 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 could create the perception of inequity across the fleet. 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.

### 7.5.2.3 Monitoring Requirements for Commercial Groundfish Fishing Vessels

**Option 1: No Action**

Under the No Action option, the monitoring requirements adopted by Amendment 16 for commercial groundfish fishing vessels would continue. This includes both at-sea monitoring at a level sufficient to meet requirements and dockside monitoring of 20 percent of trips. 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. The at-sea and dockside monitoring costs are currently being provided by NMFS at the required level, although the industry is expected to begin paying for the services in FY 2012. The costs associated with this option will lead to negative social impacts, although the relatively high level of monitoring itself is expected to have positive impacts.

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. However, the use of the 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.

**Option 2: Removal of Dockside Monitoring Requirements**

This option removes the requirement for dockside monitoring of 20 percent of commercial groundfish trips (for sector vessels beginning in FY 2011 and for all other vessels beginning in FY 2012). As a result, landings from these trips will not be independently verified, though dealer reports and vessel reports will still be required.

Similarly to the removal of the requirement for dockside monitoring for handgear and small vessel exemption permits, this option would have positive social impacts for the portion of the fleet to which it is directed in comparison to the No Action alternative. If the entire fleet is not required to pay for dockside monitoring, they can run more profitable trips and have more occupational opportunities. Unlike that option, however, this one is directed toward the entire fleet and therefore does not raise concerns of equitability.

**Option 3: Removal of Requirement for Industry Funding of Monitoring for FY 2012**

This option removes the requirement for industry funding of at-sea monitoring in FY 2012. While this does not have direct biological impacts, at-sea monitoring is essential to provide accurate information on discards. Discard information is needed so that assessments are based on total catch. Without this information there is more uncertainty on fishing mortality estimates and as a result a greater likelihood that rebuilding targets and mortality goals may not be met.

It is not possible to accurately estimate the impacts of this measure since it is not known what coverage levels would be in the absence of industry funding. Assuming that coverage would decrease as a result of this, there are several negative social impacts associated with that decreased coverage. As noted, it will lead to increased uncertainty in mortality estimates, including that uncertainty adjustments may change ACLs more greatly from year to year, rendering long-term occupational planning difficult. Also, the degree of trust among participants in the fishery, and between fishermen and managers, may be diminished if catches are not verified and some industry members are seen as able to "cheat" the system. This can lead to loss of community cohesion and a decreased feeling of stewardship for the fishery.

However, the simple fact of removal of the requirement for industry to pay for at-sea monitoring, divorced from the impacts on coverage levels, is expected to have largely positive social impacts. The monitoring is expected to be a large percentage of revenues for at least some boats in the fleet, and these vessels are currently struggling to adapt to sector management and a flagging economy. The industry is very supportive of this measure, and the extra profits they can earn if they are exempt from this payment would be able to go toward long-range planning, decreased disruptions in living and vessel operations, and would create positive attitudes about the willingness of the managers to make sector management effective.

**Option 4: Trip-end Hail Requirement**

Should dockside monitoring requirements be eliminated, commercial vessels will still be required to provide a trip-end hail via VMS. This measure should not have considerable impacts in comparison to the No Action alternative. While it does take time to submit a hail report, the expense is the same as that associated with the No Action alternative, as discussed above, and the extra effort in minimal. Vessels are already making this hail as part of dockside monitoring requirements in FY 2010, so the system and methods for doing so are already in place. It is generally regarded as a useful tool for enforcement and its purpose is well understood and accepted by some members of the fishing industry. This option should not affect attitudes or cause significant disruptions to fishing practices.

#### 7.5.2.4 Distribution of PSC from Canceled Permits

**Option 1: No Action**

Under the No Action alternative, when a limited access permit that is eligible for a sector is canceled, the PSC associated with that permit is assigned to the common pool. The most obvious social impact of this practice is that it appears to unfairly benefit participants in the common pool fishery, as their PSC will effectively have a higher value when converted to catch as the PSC associated with sector operators will. If there is any impact, it will be that people have a negative attitude about the fairness of the process.

**Option 2: Even Redistribution Among All Remaining Permits**

Unlike the No Action alternative, in this option if a permit is cancelled the associated PSC is redistributed proportionally to all other permit holders. This option will impact *formation of attitudes* by leading to a more positive perception of fairness in the fishery in comparison to the No Action alternative. Since the PSC of all participants is calculated as a percentage of the total available sub-ACL for the commercial fishery, redistributing the PSC of cancelled permits back into that overall pool will appear to be the most equitable option to participants.

### 7.5.2.5 Submission of Sector Rosters

**Option 1: No Action**

Under this option, there would be no changes to current requirements, adopted in Amendment 16, that sectors must submit final sector rosters to NMFS by September 1 for the next fishing year.

The September 1st submission date has the potential to make long-term planning difficult and therefore impact occupational opportunities and daily living for would-be sector participants. Fishermen would need to decide eight months prior to the start of the fishing year in which sector, if any, they would like to participate. It may not be possible for fishermen or sector managers to be able to formulate a profitable business plan that far in advance. Because of this uncertainty, NMFS has changed the deadline for sector roster submission for FYs 2010 and 2011. The changing date could lead those considering sector membership to not know for sure when the deadline will be and makes planning and decision making difficult.

**Option 2: Revised Submission Date**

This option would require sectors to submit final sector rosters to NMFS by December 1 in order to operate on May 1 of the following fishing year.

Compared to the No Action option, this option allows potential sector members to have more time to develop a profitable business plan and decide whether joining a sector will suit them. There are several reasons why fishermen would want to wait until 5 months prior to the fishing year to make this decision, including changing regulations and economies, and personal matters of the participants. Also, having a date certain on roster submission will decrease uncertainty in the fishery and allow for less disruptive planning.

### 7.5.3 Commercial and Recreational Fishery Measures

#### 7.5.3.1 General Category Scallop Dredge Exemption – Modification of Restrictions

**Option 1: No Action**

The No Action option maintains two seasonal closures in the Great South Channel Scallop Exemption Area that are designed to protect spawning yellowtail flounder. These closures were adopted when the exemption was implemented in August, 2006. The EA supporting the action (NMFS 2006) justifies the closures as necessary to protect rebuilding stocks of yellowtail flounder but provides no analysis or rationale for creating the closures for the General Category Scallop Fishery when groundfish fishing is allowed in the area at the same time, and limited access scallop vessels are not subject to the same restrictions. The EA does not provide evidence describing the specific impacts of scallop dredge fishing on yellowtail flounder spawning activity.

This option, although it is merely a continuation of the current regulations, is likely to lead to negative attitudes toward the equitability of the management process. Because groundfish and limited access scallop vessels are not subject to the seasonal closures, it has the appearance of singling out one segment of the fishery for burdensome restrictions. Now that the General Category fishery is operating under ITQs, there is a hard cap on catch and it is no longer possible that there will be an unlimited number of trips in the area during yellowtail spawning. This leaves very little justification for these closures that will dispel the unfair image.

**Option 2: Exemption from Yellowtail Flounder Spawning Closure**

This option eliminates the two spawning area closures that are designed to reduce the interference of General Category scallop fishing with spawning yellowtail flounder. As noted in the description of the No Action alternative, the spawning closures may provide some unquantifiable benefit to protecting yellowtail flounder. Removing the closures under this option will provide less protection to spawning fish than the No Action alternative. These benefits are marginal, however, since the closures do not apply to groundfish fishing vessels (some that may be targeting yellowtail flounder) or limited access scallop dredge trips.

As described in the biological impacts section, removal of the spawning closures may have the effect of shifting scallop effort into these months, which could reduce overall bycatch since bycatch rates are higher during later months of the year. Reducing bycatch is desirable; however, since this fleet is required to land all caught yellowtail flounder this will neither increase nor reduce *regulatory discarding*.

The amount of yellowtail flounder that is sub-allocated to the scallop fishery is calculated as a percent of the fishery's "projected need". That means that if the removal of the closures changes the amount of yellowtail caught by the scallop fleet, their sub-allocation for the following fishing year will increase or decrease accordingly. This would have the effect of shifting effort between the groundfish and scallop fisheries. When compared to No Action any measure that shifts allocation from one fishery to another may have impacts on some of the other social impact categories. *Changes in occupational opportunities* could occur if the allocation provides more opportunities in either fleet: if the scallop fishery is seen as advantaged from the allocation, then

effort could shift into that fishery. *Formation of attitudes* could clearly be affected if constituents of either fishery feel disadvantaged by the measure with respect to the other fishery.

#### 7.5.3.2 Gulf of Maine Cod Spawning Protection Area

**Option 1: No Action**

The No Action alternative maintains current management measures in the inshore GOM for commercial and recreational vessels. The commercial management measures differ for vessels in the common pool and vessels in sectors. Vessels in the common pool are not allowed to fish in the inshore area during April, May, and June because of the existing rolling closures. Vessels in sectors are allowed to fish in the rolling closures during June and can request other exemptions from the rolling closures (none have been granted to date). With respect to the recreational fishery, the measures in place include a minimum fish size, bag limit, and seasonal prohibition on possession of GOM cod (November 1 – April 15). These measures are designed primarily to control fishing mortality of this stock and while they may provide some protection to spawning fish the measures were not specifically designed for that purpose.

The No Action alternative is not expected to have significant social impacts. The regulations have been in place for several years and are largely accepted by the fishing community to be effective in meeting mortality targets. The area is popular for recreational fishing during the spring months, and the rolling closures work to protect some of the spawning population from disruptive commercial gear. There is a chance that the No Action alternative could impact attitudes of fishermen toward the regulation process. There may be a low level of tension between the recreational and commercial components of the fishery when it is perceived that one group has opportunities that are not allowed to the other. Permitting recreational fishing in the area during the rolling closures for commercial gear could marginally heighten that tension.

**Option 2: GOM Cod Spawning Protection Measures**

Under this option, vessels fishing in sectors would be prohibited from fishing in an area with aggregations of spawning cod during the month of June commonly referred to as the whaleback area. When compared to the No Action alternative, this option provides additional protection to spawning cod.

This option considers two sub-options with respect to recreational vessels. In sub-option A, recreational vessels would be prohibited from fishing in the area from April through June. This would reduce a source of mortality on spawning cod and thus provide benefits superior to the No Action alternative. Sub-option B would prohibit recreational vessels from possessing cod in this area from April through June. As a result it is less clear that there would be any benefits to cod.

Social impacts of closed areas may tend to be more far-reaching in nature than social impacts from other management measures in this framework that are more administrative in nature, although the impacts are not as great as those that would result from very low catch limits or reductions in days at sea (see NEFMC 2009a for a more thorough description). This measure can also be expected to have wider impacts than others because it affects both the commercial and recreational fleets.

Area closures tend to have the most significant impacts on *disruption in daily living* and *changes in occupational opportunities and community infrastructure*. A closure in the whaleback area,

compared to the No Action alternative, is likely to cause effort (especially recreational effort) to be shifted to other areas, which could change opportunities and infrastructure in the ports that are currently operating trips in the whaleback area. Reductions in groundfish fishing opportunities in this area compromise vessels' flexibility and can have direct impacts on fishing activity within a port, consequently impacting the shoreside facilities that are dependent on the affected vessels. If vessels in the area lose business as party/charter clients sign up for trips in other areas, social impacts associated with economic loss could occur including increased uncertainty and instability in the fishery and/or community, problems finding and keeping crew members on a year-round basis, social impacts related to family and business financial problems, overall increased stress at the individual, family, and community level, and reductions in perceptions about job satisfaction. Given the small area of the closure, however, the loss of business is expected to be minor and therefore these effects will not be substantial. It is important to note that the suboption that creates a cod possession limit is also likely to lead to increased *regulatory discards* of GOM cod.

There are also positive social impacts associated with this option. Because the closure affects commercial and recreational fishermen equally, it could help to promote perceptions of equity among the two fleets. However, some recreational vessel operators have indicated that they feel as thought this option targets them unfairly, as commercial vessels are subject to rolling closures anyway under the No Action alternative. Another potentially positive impact is that there has been wide support for protecting spawning cod, as all participants in the fishery value large and robust fish. The creation of a closure or a cod possession limit could lead to more positive attitudes about the future of the fishery by satisfying a sense of stewardship than the No Action alternative.

Note that the most significantly impacted communities will be those that are geographically proximate to the area or that serve as the homeport for vessels that fish there. The most affected areas are expected to be the New Hampshire Seacoast as well as northern Massachusetts ports including Newburyport as far south as Gloucester.

#### 7.5.3.3 Handgear A Cod Trip Limits

**Option 1: No Action**

The No Action regulations for Handgear A permits mandate a 300 lb. trip limit for these permits. The trip limit adjusts (higher or lower) proportional to the trip limit for common pool DAS vessels. This includes any in-season adjustment to the GOM cod trip limits implemented by the Regional Administrator. In-season adjustments are based on whether catches need to be slowed or increased to achieve the common-pool ACL for GOM cod. Under the No Action alternative, Handgear A vessels would also be subject to all the rolling closures that affect common pool vessels.

Trip limits are most likely to affect *regulatory discarding* and *formation of attitudes*. In general, trip limits can affect the structure of a fishery. If the trip limit is set very low, the inshore sector of the fleet can sometimes manage to fish economically, while the offshore sector of the fleet cannot cover trip expenses to direct fishing effort on the species managed by the trip limit. Since Handgear A vessels tend to fish inshore, this means they can sometimes profit in the presence of trip limits, but still feel constraints. Social impacts have resulted because the trip limits themselves hold a socially-undesirable characteristic – *regulatory discarding*. In the Handgear A fishery, cod are generally the target species so discards of the stock should not be as large when fishing with certain other gear types.

**Option 2: Rolling Closure Exemption for Handgear A Vessels**

Under this option, Handgear A vessels will be exempt from all GOM rolling closures implemented by Amendment 13. Access to future closed areas (such as the GOM cod spawning protection area in 4.3.2) will be determined when the measure is adopted.

The impacts of this option, in comparison to the No Action option, can be seen as related to the impacts of the Gulf of Maine spawning closure option. Allowing Handgear A vessels to fish in the rolling closure areas could produce positive social effects for participants, in that they will have access to more fishing grounds near their homeports and have increased occupational opportunities there during the months of the exemption. However, allowing only this portion of the fleet into the area could create perceptions of inequity among the common pool as a whole.

Compared to the No Action alternative, this could increase perceptions of inequity in some communities. This often exacerbates conflicts between segments of the industry, which create social impacts in the form of intracommunity conflicts and loss of community cohesion. These perceptions are tempered by the fact that Handgear A vessels are already subject to unique management measures under the No Action option, so these impacts are not expected to be major. Handgear A vessels also have the option to join sectors, and the extent of the impacts of proposed trip limits will depend upon whether permits ultimately fish in sectors.

**Option 3: Partial Rolling Closure Exemption for Handgear A Vessels**

Handgear A vessels are exempt from all the same GOM rolling closures as the universal exemptions for sector vessels. The areas and months that remain closed to Handgear A vessels are shown in Figure 2. Access to future closed areas (such as the GOM cod spawning protection area in 4.3.2) will be determined when the measure is adopted.

This option is expected to have similar impacts to Option 2 under this measure, except that the positive occupational opportunity impacts will be somewhat less (since there are still some closures in effect). The perceptions of unfairness would also be expected to be smaller with this option, since sector vessels are already exempt from the same closures and therefore there is a precedent with a different part of the fleet.

**Option 4: Handgear A Trip Limit Modification**

The cod trip limit for vessels fishing under a Handgear A permit will adjust proportionally to the cod trip limit for cod in the relevant stock area that applies to limited access DAS vessels fishing in the common pool. The baseline Handgear A trip limit is 300 lbs./trip, limited to one trip per day. The baseline cod trip limit for limited access vessels fishing in the GOM is that adopted by FW 44 (800 lbs./DAS). For limited access vessels fishing in the GB stock area, the baseline cod trip limit is as adopted in Amendment 13 (2,000 lbs/DAS). As an example, under this measure if the GOM cod trip limit is reduced by 50 percent for limited access vessels, the Handgear A trip limit is reduced by 50 percent for vessels fishing in the GOM, but no change is made to the trip limit for Handgear A vessels fishing on GB. NMFS may adopt administrative measures necessary to implement this measure, such as requiring Handgear A vessels to obtain a letter of authorization to fish in defined stock areas.

This option makes changes in the Handgear A GOM cod trip limit independent of changes in the GB cod trip limits. It is expected to have minor impacts since this is a small portion of the fleet.

However, among those participants in the handgear fishery, and especially those that fish for GB cod, it should have positive impacts. This is a common-sense measure that bases catch limits on the status of the applicable stock and will remove the link that bases GB cod handgear catches on biological attributes of the GOM stock. To that end, it should promote a sense of fairness. It should also, to a small extent, reduce unnecessary discards of GB cod that would occur if catch limits on that stock were set unnaturally low to be tied to the GOM stock. As mentioned above, this fishery is not expected to produce large amounts of cod discards. Under the No Action alternative, the trip limit on GB cod could be smaller, so these regulatory discards resulting from the trip limit would likely be larger; this measure would probably decrease discards when compared to No Action. This measure would also prevent a situation in which handgear fishing on GB cod could be effectively shut down if the GOM cod common pool ACL is approached and the trip limit on that stock goes very low or to zero. A very low trip limit of zero would be likely to prevent these vessels from going fishing at all and hence would produce no discards, but would reduce occupational opportunities and lead to lost income.

The exemption from seasonal closures in GB is expected to have the same impacts as Options 1 and 2, and is discussed in those sections.

**Option 5: Handgear B Trip Limit Modification**

The cod trip limit for vessels fishing under a Handgear B will adjust proportionally to the cod trip limit for cod in the relevant stock area that applies to limited access DAS vessels fishing in the common pool. The baseline Handgear A trip limit is 75 lbs./trip, limited to one trip per day. The baseline cod trip limit for limited access vessels fishing in the GOM is that adopted by FW 44 (800 lbs./DAS). For limited access vessels fishing in the GB stock area, the baseline cod trip limit is as adopted in Amendment 13 (2,000 lbs/DAS). As an example, under this measure if the GOM cod trip limit is reduced by 50 percent for limited access vessels, the Handgear B trip limit is reduced by 50 percent for vessels fishing in the GOM, but no change is made to the trip limit for Handgear A vessels fishing on GB. NMFS may adopt administrative measures necessary to implement this measure, such as requiring Handgear A vessels to obtain a letter of authorization to fish in defined stock areas.

The impacts of this measure are similar to those of the adjustment by area measures in Option 4, except that they apply to Handgear B permits.

## *7.6 Cumulative Effects Analysis*

### 7.6.1 Introduction

A cumulative effects assessment (CEA) is a required part of an EIS or EA according to the Council on Environmental Quality (CEQ) (40 CFR part 1508.7) and NOAA's agency policy and procedures for NEPA, found in NOAA Administrative Order 216-6. The purpose of the CEA is to integrate into the impact analyses, the combined effects of many actions over time that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective but rather, the intent is to focus on those effects that are truly meaningful. This section serves to examine the potential direct and indirect effects of the alternatives in Framework 44 together with past, present, and reasonably foreseeable future actions that affect the groundfish environment. It should also be noted that the predictions of potential synergistic effects from multiple actions, past, present and/or future will generally be qualitative in nature.

Valued Ecosystem Components (VEC)
As noted in section 6.0 (Description of the Affected Environment), the VECs that exist within the groundfish fishery are identified and the basis for their selection is established. Those VECs were identified as follows:

1. Regulated groundfish stocks (target and non-target);
2. Non-groundfish species (incidental catch and bycatch);
3. Endangered and other protected species;
4. Habitat, including non-fishing effects; and
5. Human Communities (includes economic and social effects on the fishery and fishing communities).

Temporal Scope of the VECs
While the effects of historical fisheries are considered, the temporal scope of past and present actions for regulated groundfish stocks, non-groundfish species, habitat and the human environment is primarily focused on actions that have taken place since implementation of the initial NE Multispecies FMP in 1977. An assessment using this timeframe demonstrates the changes to resources and the human environment that have resulted through management under the Council process and through U.S. prosecution of the fishery, rather than foreign fleets. For endangered and other protected species, the context is largely focused on the 1980s and 1990s, when NMFS began generating stock assessments for marine mammals and turtles that inhabit waters of the U.S. EEZ. In terms of future actions, this analysis examines the period between implementation of this amendment (May 1, 2011) and the anticipated rebuilding of the fishery in 2026. This date was chosen because after the fishery is rebuilt, changes to the management of groundfish that are not possible to predict at this time are likely.

Geographic Scope of the VECs
The geographic scope of the analysis of impacts to regulated groundfish stocks, non-groundfish species and habitat for this action is the total range of these VECs in the Western Atlantic Ocean, as described in the Affected Environment section of the document (section 6.0). However, the analyses of impacts presented in this amendment focuses primarily on actions related to the harvest of the managed resources. The result is a more limited geographic area used to define the

core geographic scope within which the majority of harvest effort for the managed resources occurs. For endangered and protected species, the geographic range is the total range of each species (section 6.4).

Because the potential exists for far-reaching sociological or economic impacts on U.S. citizens who may not be directly involved in fishing for the managed resources, the overall geographic scope for human communities is defined as all U.S. human communities. Limitations on the availability of information needed to measure sociological and economic impacts at such a broad level necessitate the delineation of core boundaries for the human communities. Therefore, the geographic range for the human environment is defined as those primary and secondary ports bordering the range of the groundfish fishery (section 6.5.2) from the U.S.-Canada border to, and including, North Carolina.

Analysis of Total Cumulative Effects

A cumulative effects assessment ideally makes effect determinations based on the culmination of the following: (1) impacts from past, present and reasonably foreseeable future actions; PLUS (2) the baseline condition for resources and human communities (note – the baseline condition consists of the present condition of the VECs plus the combined effects of past, present and reasonably foreseeable future actions); PLUS (3) impacts from the Proposed Action and alternatives.

*To be completed*

# 8.0 Applicable Law

## *8.1 Magnuson-Stevens Fishery Conservation and Management Act*

### 8.1.1 Consistency with National Standards

Section 301 of the Magnuson-Stevens Act requires that regulations implementing any fishery management plan or amendment be consistent with the ten national standards listed below.

*To be completed*

*Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.*

*Conservation and management measures shall be based on the best scientific information available.*

*To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.*

*Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.*

*Conservation and management measures shall, where practicable consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.*

*Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.*

*Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.*

*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 impacts on such communities.*

*Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.*

*Conservation and management measures shall, to the extent practicable, promote safety of human life at sea.*

### 8.1.2 Other M-SFCMA requirements

Section 303 (a) of FCMA contains 14 required provisions for FMPs. These are discussed below. It should be emphasized that the requirement is imposed on the FMP. In some cases noted below, the M-S Act requirements are met by information in the Northeast Multispecies FMP, as amended. Any fishery management plan that is prepared by any Council, or by the Secretary, with respect to any fishery, shall—

*(1) contain the conservation and management measures, applicable to foreign fishing and fishing by vessels of the United States, which are-- (A) necessary and appropriate for the conservation and management of the fishery to prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery; (B) described in this subsection or subsection (b), or both; and (C) consistent with the National Standards, the other provisions of this Act, regulations implementing recommendations by international organizations in which the United States participates (including but not limited to closed areas, quotas, and size limits), and any other applicable law;*

Foreign fishing is not allowed under this management plan or this action and so specific measures are not included that specify and control allowable foreign catch. The measures in this management plan are designed to prevent overfishing and rebuild overfished stocks. There are no international agreements that are germane to multispecies management (the U.S./Canada Resource Sharing Understanding, implemented through Amendment 13, is not considered an international agreement).

*(2) contain a description of the fishery, including, but not limited to, the number of vessels involved, the type and quantity of fishing gear used, the species of fish involved and their location, the cost likely to be incurred in management, actual and potential revenues from the fishery, any recreational interest in the fishery, and the nature and extent of foreign fishing and Indian treaty fishing rights, if any;*

Amendment 16 included a thorough description of the multispecies fishery from 2001 through 2008, including the gears used, number of vessels, landings and revenues, and effort used in the fishery. This action provides a summary of that information and additional relevant information about the fishery in Section 6.5.3.

*(3) assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from, the fishery, and include a summary of the information utilized in making such specification;*

The present biological status of the fishery is described in Section 6.2. Likely future conditions of the resource are described in Section 7.1.1.3. Impacts resulting from other measures in the management plan other than the specifications included here can be found in Amendment 16. The

maximum sustainable yield for each stock in the fishery is defined in Amendment 16 and optimum yield for the fishery is defined in Amendment 9.

*(4) assess and specify-- (A) the capacity and the extent to which fishing vessels of the United States, on an annual basis, will harvest the optimum yield specified under paragraph (3); (B) the portion of such optimum yield which, on an annual basis, will not be harvested by fishing vessels of the United States and can be made available for foreign fishing; and (C) the capacity and extent to which United States fish processors, on an annual basis, will process that portion of such optimum yield that will be harvested by fishing vessels of the United States;*

U.S. fishing vessels are capable of, and expected to, harvest the optimum yield from this fishery as specified in Amendment 16 and Framework 45. U.S. processors are also expected to process the harvest of U.S. fishing vessels. None of the optimum yield from this fishery can be made available to foreign fishing.

*(5) specify the pertinent data which shall be submitted to the Secretary with respect to commercial, recreational, and charter fishing in the fishery, including, but not limited to, information regarding the type and quantity of fishing gear used, catch by species in numbers of fish or weight thereof, areas in which fishing was engaged in, time of fishing, number of hauls, and the estimated processing capacity of, and the actual processing capacity utilized by, United States fish processors;*

Current reporting requirements for this fishery have been in effect since 1994 and were originally specified in Amendment 5. They were slightly modified in Amendments 13 and 16, and VMS requirements were adopted in FW 42. The requirements include Vessel Trip Reports (VTRs) that are submitted by each fishing vessel. Dealers are also required to submit reports on the purchases of regulated groundfish from permitted vessels. Current reporting requirements are detailed in 50 CFR 648.7.

*(6) consider and provide for temporary adjustments, after consultation with the Coast Guard and persons utilizing the fishery, regarding access to the fishery for vessels otherwise prevented from harvesting because of weather or other ocean conditions affecting the safe conduct of the fishery; except that the adjustment shall not adversely affect conservation efforts in other fisheries or discriminate among participants in the affected fishery;*

Provisions in accordance with this requirement were implemented in earlier actions, and continue with this action. For common pool vessels, the carry-over of a small number of DAS is allowed from one fishing year to the next. If a fisherman is unable to use all of his DAS because of weather or other conditions, this measure allows his available fishing time to be used in the subsequent fishing year. Sectors will also be allowed to carry forward a small amount of ACE into the next fishing year. This will help sectors react should adverse weather interfere with harvesting the entire ACE before the end of the year. Neither of these practices requires consultation with the Coast Guard.

*(7) describe and identify essential fish habitat for the fishery based on the guidelines established by the Secretary under section 305(b)(1)(A), minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat;*

Essential fish habitat was defined for Atlantic wolffish in Amendment 16, and for all stocks in an earlier action. A summary of the EFH can be found in Section 6.1.3.

*(8) in the case of a fishery management plan that, after January 1, 1991, is submitted to the Secretary for review under section 304(a) (including any plan for which an amendment is submitted to the Secretary for such review) or is prepared by the Secretary, assess and specify the nature and extent of scientific data which is needed for effective implementation of the plan;*

Scientific and research needs are not required for a framework adjustment. Current research needs are identified in Amendment 16.

*(9) include a fishery impact statement for the plan or amendment (in the case of a plan or amendment thereto submitted to or prepared by the Secretary after October 1, 1990) which shall assess, specify, and describe the likely effects, if any, of the conservation and management measures on-- (A) participants in the fisheries and fishing communities affected by the plan or amendment; and (B) participants in the fisheries conducted in adjacent areas under the authority of another Council, after consultation with such Council and representatives of those participants;*

Impacts of this framework on fishing communities directly affected by this action and adjacent areas can be found in Section 7.5.

*(10) specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery) and, in the case of a fishery which the Council or the Secretary has determined is approaching an overfished condition or is overfished, contain conservation and management measures to prevent overfishing or end overfishing and rebuild the fishery;*

Objective and measurable Status Determination Criteria for all species in the management plan are presented in Amendment 16, with the exception of Atlantic pollock, which is revised in this framework. A full explanation of how the criteria were determined can be found in the GARM III (NEFSC 2008) and Data Poor Working Group documents (DPWG 2009).

*(11) establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority-- (A) minimize bycatch; and (B) minimize the mortality of bycatch which cannot be avoided;*

A Standardized Bycatch Reporting Methodology omnibus amendment was adopted by the Council in June 2007. That methodology applies to this framework. None of the measures in this framework are expected to increase bycatch beyond what was considered in Amendment 16.

*(12) assess the type and amount of fish caught and released alive during recreational fishing under catch and release fishery management programs and the mortality of such fish, and include conservation and management measures that, to the extent practicable, minimize mortality and ensure the extended survival of such fish;*

This management plan does not include a catch and release recreational fishery management program and thus does not address this requirement.

*(13) include a description of the commercial, recreational, and charter fishing sectors which participate in the fishery and, to the extent practicable, quantify trends in landings of the managed fishery resource by the commercial, recreational, and charter fishing sectors;*

As noted above, the description of the commercial, recreational, and charter fishing sectors was fully developed in Amendment 16, and is updated and summarized in this document (Section 6.5.3).

*(14) to the extent that rebuilding plans or other conservation and management measures which reduce the overall harvest in a fishery are necessary, allocate any harvest restrictions or recovery benefits fairly and equitably among the commercial, recreational, and charter fishing sectors in the fishery.*

This proposed action does not allocate harvest restrictions or stock benefits to the fishery. Such allocations were adopted in Amendment 16, while this action adjusts catch limits for some stocks within the existing allocation structure.

*(15) establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability.*

Annual Catch Limits specifications were adopted in Framework 44, with updates to several stocks including in this framework. The ACL process was described in Amendment 16. Specifications were developed in a way to ensure that overfishing does not occur in accordance with Amendment 16 and all relevant laws.

### 8.1.3 EFH Assessment

This essential fish habitat (EFH) assessment is provided pursuant to 50 CFR 600.920(e) of the EFH Final Rule to initiate EFH consultation with the National Marine Fisheries Service.

*To be completed*

## *8.2 National Environmental Policy Act (NEPA)*

NEPA provides a mechanism for identifying and evaluating the full spectrum of environmental issues associated with federal actions, and for considering a reasonable range of alternatives to avoid or minimize adverse environmental impacts. This document is designed to meet the requirements of both the M-S Act and NEPA. The Council on Environmental Quality (CEQ) has issued regulations specifying the requirements for NEPA documents (40 CFR 1500 – 1508), as has NOAA in its agency policy and procedures for NEPA in NAO 216-6 §5.04b.1. All of those requirements are addressed in this document, as referenced below.

### 8.2.1 Environmental Assessment

The required elements of an Environmental Assessment (EA) are specified in 40 CFR 1508.9(b) and NAO 216-6 §5.04b.1. They are included in this document as follows:

- The need for this action is described in section 3.2;
- The alternatives that were considered are described in sections 4.0 (Proposed Action) and XXX (alternatives to the Proposed Action);
- The environmental impacts of the Proposed Action are described in section 7.0;

- The agencies and persons consulted on this action are listed in section 8.2.4.

While not required for the preparation of an EA, this document includes the following additional sections that are based on requirements for an Environmental Impact Statement (EIS).

- An Executive Summary can be found in section 1.0.
- A table of contents can be found in section 2.0.
- Background and purpose are described in section 3.0.
- A summary of the document can be found in section 1.0.
- A brief description of the affected environment is in section 6.0.
- Cumulative impacts of the Proposed Action are described in section 0.
- A determination of significance is in section 8.2.2.
- A list of preparers is in section 8.2.3.
- The index is in section 9.2.

### 8.2.2 Finding of No Significant Impact (FONSI)

National Oceanic and Atmospheric Administration Order (NAO) 216-6 (revised May 20, 1999) provides nine criteria for determining the significance of the impacts of a final fishery management action. These criteria are discussed below:

*To be completed*

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

(2) *Can the Proposed Action reasonably be expected to jeopardize the sustainability of any non-target species?*

(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?*

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

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

(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.)?*

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

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

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

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

(11) *Is the Proposed Action related to other actions with individually insignificant, but cumulatively significant impacts?*

(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?*

(13) *Can the Proposed Action reasonably 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 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?*

(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?*

**FONSI STATEMENT**: In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment prepared for Framework Adjustment 45 to the Northeast Multispecies Fishery Management Plan, it is hereby determined that Framework Adjustment 45 will not significantly impact the quality of the human environment as described above and in the supporting Environmental Assessment. In addition, all beneficial and adverse impacts of the Proposed Action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an EIS for this action is not required.

_____ _____

Northeast Regional Administrator, NOAA Date

### 8.2.3 List of Preparers; Point of Contact

Questions concerning this document may be addressed to:

Mr. Paul Howard, Executive Director
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950
(978) 465-0492

This document was prepared by:

*To be completed*

### 8.2.4 Agencies Consulted

The following agencies were consulted in the preparation of this document:

Mid-Atlantic Fishery Management Council

New England Fishery Management Council, which includes representatives from the following additional organizations:

- Connecticut Department of Environmental Protection
- Rhode Island Department of Environmental Management
- Massachusetts Division of Marine Fisheries
- New Hampshire Fish and Game
- Maine Department of Marine Resources

National Marine Fisheries Service, NOAA, Department of Commerce

United States Coast Guard, Department of Homeland Security

### 8.2.5 Opportunity for Public Comment

The Proposed Action was developed during the period June 2010 through November 2010 and was discussed at the following meetings. Opportunities for public comment were provided at each of these meetings.

| | | |
|---|---|---|
| NEFMC Council | Eastland Park Hotel, Portland ME | 6/24/2010 |
| Groundfish Oversight | Holiday Inn, Mansfield MA | 9/9/2010 |
| NEFMC Council | Hotel Viking, Newport RI | 9/30/2010 |
| Groundfish Oversight | Sheraton Harborside, Portsmouth NH | 10/27/2010 |
| NEFMC Council | Ocean Edge Resort, Brewster MA | 11/18/2010 |

## *8.3 Endangered Species Act*

Section 7 of the Endangered Species Act requires federal agencies conducting, authorizing or funding activities that affect threatened or endangered species to ensure that those effects do not jeopardize the continued existence of listed species. The NEFMC has concluded, at this writing, that the proposed framework adjustment 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.

The Council 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. The NEFMC is now seeking the concurrence of the National Marine Fisheries Service with respect to Framework Adjustment 45.

For further information on the potential impacts of the fishery and the proposed management action on listed species, see section 7.3 of this document.

## 8.4 Marine Mammal Protection Act

The NEFMC has reviewed the impacts of the Proposed Action on marine mammals and has concluded that the management actions proposed are consistent with the provisions of the MMPA. Although they are likely to affect species inhabiting the multispecies management unit, the measures will not alter the effectiveness of existing MMPA measures, such as take reduction plans, to protect those species based on overall reductions in fishing effort that have been implemented through the FMP

For further information on the potential impacts of the fishery and the proposed management action on marine mammals, see section 7.3 of this document.

## 8.5 Coastal Zone Management Act

Section 307(c)(1) of the Federal CZMA of 1972 requires that all Federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. Pursuant to Section 930.36(c) of the regulations implementing the Coastal Zone Management Act, NMFS made a general consistency determination that the Northeast Multispecies Fishery Management Plan (FMP), including Amendment 16, and Framework Adjustment 45, is consistent to the maximum extent practicable with the enforceable policies of the approved coastal management program of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina. This general consistency determination applies to the current NE Multispecies Fishery Management Plan (FMP), and all subsequent routine Federal actions carried out in accordance with the FMP such as Framework Adjustments and specifications. A general consistency determination is warranted because Framework Adjustments to the FMP are repeated activities that adjust the use of management tools previously implemented in the FMP. A general consistency determination avoids the necessity of issuing separate consistency determinations for each incremental action. This determination was submitted to the above states on TBD. To date, the states of North Carolina, Rhode Island, Virginia, Connecticut, New Hampshire, and Pennsylvania have concurred with the General Consistency Determination.

## 8.6 Administrative Procedure Act

This action was developed in compliance with the requirements of the Administrative Procedure Act, and these requirements will continue to be followed when the proposed regulation is published. Section 553 of the Administrative Procedure Act establishes procedural requirements applicable to informal rulemaking by Federal agencies. The purpose of these requirements is to ensure public access to the Federal rulemaking process, and to give the public adequate notice and opportunity for comment. At this time, the Council is not requesting any abridgement of the rulemaking process for this action.

## 8.7 Data Quality Act

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.

### 8.7.1 Utility of Information Product

The information presented in this document is helpful to the intended users (the affected public) by presenting a clear description of the purpose and need of the Proposed Action, the measures proposed, and the impacts of those measures. A discussion of the reasons for selecting the Proposed Action is included so that intended users may have a full understanding of the Proposed Action and its implications.

Until a proposed rule is prepared and published, this document is the principal means by which the information contained herein is available to the public. The information provided in this document is based on the most recent available information from the relevant data sources. The development of this document and the decisions made by the Council to propose this action are the result of a multi-stage public process. Thus, the information pertaining to management measures contained in this document has been improved based on comments from the public, the fishing industry, members of the Council, and NOAA Fisheries Service.

This document is available in several formats, including printed publication, CD-ROM, and online through the Council's web page in PDF format. The Federal Register notice that announces the proposed rule and the final rule and implementing regulations will be made available in printed publication, on the website for the Northeast Regional Office, and through the Regulations.gov website. The Federal Register documents will provide metric conversions for all measurements.

### 8.7.2 Integrity of Information Product

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 NOAA Fisheries Service adheres to the standards set out in Appendix III, "Security of Automated Information Resources," of OMB 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-Stevens Act; and NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics.

### 8.7.3 Objectivity of Information Product

For purposes of the Pre-Dissemination Review, this document 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 Essential Fish Habitat Guidelines; the National Standard Guidelines; and NOAA Administrative Order 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act.

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. These update assessments were reviewed by the Groundfish Assessment Review Meeting III (GARM III; NEFSC 2008) and the Northeast

Data Poor Stocks Working Group (DPWG 2009), which both included participation by independent stock assessment scientists. Landing and revenue information is based on information collected through the Vessel Trip Report and Commercial Dealer databases. Information on catch composition, by tow, is based on reports collected by the NOAA Fisheries Service observer program and incorporated into the sea sampling or observer database systems. 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 document were prepared using data from accepted sources, and the analyses have been reviewed by members of the Groundfish Plan Development Team/Monitoring Committee.

Despite current data limitations, the conservation and management measures proposed for this action were selected based upon the best scientific information available. The analyses conducted in support of the Proposed Action were conducted using information from the most recent complete calendar years, through 2009, and in some cases includes information that was collected during the first eight months of calendar year 2010. Complete data were not available for calendar year 2010. The data used in the analyses provide the best available information on the number of harvesters in the fishery, the catch (including landings and discards) by those harvesters, the sales and revenue of those landings to dealers, the type of permits held by vessels, the number of DAS used by those vessels, the catch of recreational fishermen and the location of those catches, and the catches and revenues from various special management programs. 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 groundfish fishery.

The policy choices are clearly articulated, in section 4.0 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 in section 7.0 of this document. 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 document involves the responsible Council, the Northeast Fisheries Science Center, the Northeast Regional Office, and NOAA Fisheries Service Headquarters. The Center's technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, demersal resources, population biology, and the social sciences. The Council review process involves public meetings at which affected stakeholders have opportunity to provide comments on the document. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the action proposed in this document and clearance of any rules prepared to implement resulting regulations is conducted by staff at NOAA Fisheries Service Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

## *8.8 Executive Order 13132 (Federalism)*

This E.O. established nine fundamental federalism principles for Federal agencies to follow when developing and implementing actions with federalism implications. The E.O. also lists a series of policy making criteria to which Federal agencies must adhere when formulating and implementing policies that have federalism implications. However, no federalism issues or

implications have been identified relative to the measures proposed in FW 45. This action does not contain policies with federalism implications sufficient to warrant preparation of an assessment under E.O. 13132. The affected states have been closely involved in the development of the proposed management measures through their representation on the Council (all affected states are represented as voting members of at least one Regional Fishery Management Council). No comments were received from any state officials relative to any federalism implications that may be associated with this action.

## *8.9 Executive Order 13158 (Marine Protected Areas)*

The Executive Order on Marine Protected Areas requires each federal agency whose actions affect the natural or cultural resources that are protected by an MPA to identify such actions, and, to the extent permitted by law and to the maximum extent practicable, in taking such actions, avoid harm to the natural and cultural resources that are protected by an MPA. The E.O. directs federal agencies to refer to the MPAs identified in a list of MPAs that meet the definition of MPA for the purposes of the Order. The E.O. requires that the Departments of Commerce and the Interior jointly publish and maintain such a list of MPAs. As of the date of submission of this FMP, the list of MPA sites has not been developed by the departments. No further guidance related to this Executive Order is available at this time.

## *8.10 Paperwork Reduction Act*

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. The authority to manage information and recordkeeping requirements is vested with the Director of the Office of Management and Budget (OMB). This authority encompasses establishment of guidelines and policies, approval of information collection requests, and reduction of paperwork burdens and duplications.

FW 45 continues existing collection of information requirements implemented by previous amendments to the FMP that are subject to the PRA, including:

- Reporting requirements for SAPs and the Category B (regular) DAS Program
- Mandatory use of a Vessel Monitoring System (VMS) by all vessels using a groundfish DAS
- Changes to possession limits, which will change the requirements to notify NMFS of plans to fish in certain areas
- Provisions to allow vessel operators to notify NMFS of plans to fish both inside and outside the Eastern U.S./CA area on the same fishing trip

## *8.11 Regulatory Impact Review*

*To be completed*

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## *9.2 Index*

*To be completed*